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Water Resources Data for Virginia
Water Year 1981

(U.S.) Geological Survey
Richmond, VA

May 82

U.S. Department of Commerce
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U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

Water Resources Data
Virginia
Water Year 1981

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT VA-81-1
Prepared in cooperation with the State of Virginia
and with other agencies

NATIONAL TECHNICAL
INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

CALENDAR FOR WATER YEAR 1981

1980

OCTOBER

S	M	T	W	T	F	S
			1	2	3	4
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NOVEMBER

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1981

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30	31					

SEPTEMBER

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20	21	22	23	24	25	26
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UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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Richmond, Virginia 23220

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Charlottesville, Virginia 22903

1982

PREFACE

This report was prepared by personnel of the Virginia district of the Water Resources Division of the U.S. Geological Survey under the supervision of W. E. Forrest, District Chief, G. S. Anderson, Acting District Chief, and J. E. Biesecker, Regional Hydrologist, Northeastern Region. It was done in cooperation with the State of Virginia and with other agencies.

This report is one of a series issued by State. General direction for the series is by Philip Cohen, Chief Hydrologist, U.S. Geological Survey, and Robert J. Dingman, Assistant Chief Hydrologist for Scientific Publications and Data Management.

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Water resources data for the 1981 water year for Virginia consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This volume contains records for water discharge at 211 gaging stations; stage only at 1 gaging station; stage and contents at 10 lakes and reservoirs; water quality at 48 gaging stations and 75 wells; and water levels at 57 observation wells. Also included are data for 64 crest-stage partial-record stations. Locations of these sites are shown on Figures 5 and 6. Additional water data were collected at various sites not involved in the systematic data-collection program. Discharge measurements were made at 98 coal-monitoring partial-record stations and at 171 low-flow partial-record stations. Miscellaneous data were collected at 285 measuring sites and 170 water-quality sampling sites. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

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[*Letter after station name designates type of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (p) pesticides, (t) daily water temperature, (s) sediment, (e) elevation, gage heights, or contents*]

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Well 43N1 518

APPOMATTOX COUNTY

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Well 41H2 518
Well 41H3 519

ARLINGTON COUNTY

Well 53V1 519
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Well 41H1 519
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WATER RESOURCES DATA FOR VIRGINIA, 1981

INTRODUCTION

Water resources data for the 1981 water year for Virginia consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground-water wells. This volume contains records for water discharge at 211 gaging stations; stage only at 1 gaging station; stage and contents at 10 lakes and reservoirs; water quality at 48 gaging stations and 75 wells; and water levels at 57 observation wells. Also included are data for 64 crest-stage partial-record stations. Locations of these sites are shown on figures 5 and 6. Additional water data were collected at various sites not involved in the systematic data-collection program. Discharge measurements were made at 98 coal-monitoring partial-record stations and 171 low-flow partial-record stations. Miscellaneous data were collected at 285 measuring sites and 170 water-quality sampling sites. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Virginia.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from the Branch of Distribution, U.S. Geological Survey, 604 South Pickett Street, Alexandria, Virginia, 22304.

For water years 1961 through 1970, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1970 were similarly released either in separate reports or in conjunction with streamflow records.

Beginning with the 1971 water year, water data for streamflow, water quality, and ground water are published in official Survey reports on a State-boundary basis. These official Survey reports carry an identification consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report VA-81-1." These water-data reports are for sale, in paper copy or in microfiche, by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.

Additional information, including current prices, for ordering specific reports may be obtained from the district chief at the address given on the back of the title page or by telephone (804) 771-2427.

COOPERATION

The U.S. Geological Survey and organizations of the State of Virginia have had cooperative agreements for the systematic collection of streamflow records since 1925, for ground-water levels from 1931 to 1957 and since 1967, and for water-quality records from 1944 to 1957 and since 1967. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Virginia State Water Control Board, Robert V. Davis, executive director.
Virginia Department of Highways and Transportation, Harold C. King, commissioner.
City of Alexandria, Douglas Harman, city manager.
City of Newport News, C. C. Crowder, director, Department of Public Utilities.
City of Roanoke, Kit B. Kiser, Director, Utilities and Operations.
City of Staunton, R. Gene McCombs, city manager.
Southeastern Public Service Authority, Durwood S. Curling, executive director.
James City County, Wayland Bass, director, Department of Public Works.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 65 gaging stations and 6 water-quality stations published in this report.

Under a cooperative agreement covering the Tennessee River basin, the Tennessee Valley Authority furnished financial assistance for the operation of 8 gaging stations, the records for which are published herein.

Assistance was also furnished by the Water Quality Office, Environmental Protection Agency.

The Appalachian Power Company and the City of Radford aided in collecting records.

Organizations that supplied data are acknowledged in station descriptions.

SUMMARY OF HYDROLOGIC CONDITIONS

The 1981 water year in Virginia was characterized by record-breaking below-normal flows. While the instantaneous streamflows did not reach the low levels of the drought years in the 1930's, the monthly and annual means at many sites were the lowest on record. Streams in the central, eastern, southern, and northern portions of the State showed the greatest departure from long-term average flow conditions while streams in the extreme southwestern part of the State were affected the least. The table below presents six stream-gaging stations representative of various parts of the State and their respective annual flows during the 1981 water year.

Gaging Station	Portion of State	Annual mean flow for 1981 (cfs)	Rank	Length of record (years)
Nottoway River near Stony Creek, Va.	Southeast	203	2nd lowest	51
James River at Cartersville, Va.	Central and Western	2700	lowest	83
Slate River near Arvonia, Va.	Central	78.9	lowest	64
Rapidan River near Culpeper, Va.	Northeast	237	lowest	50
SF Shenandoah River at Front Royal, Va.	Northwest	680	lowest	81
NF Holston River at Saltville, Va.	Southwest	202	7th lowest	51

Streamflows at the end of the 1980 water year were below normal and this condition continued with only minor interruptions for the entire water year. (See figure 2.) Streamflow remained below normal from August 1980 through January 1982 except for a brief one month respite in June 1981. The greatest departures from normal occurred during the winter and spring when flows averaged less than 50 percent of normal. January and March 1981 both were notable for their atypically low flows. New record monthly lows were established at many stations during these months. The following table presents monthly mean flow for six gaging stations representative of various parts of the State for March 1981.

Gaging Station	Portion of State	Mean flow March 1981 (cfs)	Rank	Length of record (years)
Nottoway River near Stony Creek, Va.	Southeast	196	lowest	51
James River at Cartersville, Va.	Central and Western	2650	lowest	83
Slate River near Arvonia, Va.	Central	80.2	lowest	64
Rapidan River near Culpeper, Va.	Northeast	248	2nd lowest	50
SF Shenandoah River at Front Royal, Va.	Northwest	632	lowest	81
NF Holston River at Saltville, Va.	Southwest	249	4th lowest	51

Agriculture interests appeared to have less problems with the reduced flows in the 1981 water year than in 1980 despite the fact that flows were lower in 1981. The precipitation during 1981, although below normal, was well distributed and helped ameliorate the shortfall in total rainfall.

Public water systems on the other hand had more problems in 1981. The length of the period in 1981 with below-normal rainfall and runoff, in conjunction with increases in population since the last major drought in the mid 1960's, created serious supply situations for many communities. Those localities depending upon surface-water flows, either directly or from reservoirs as their major source of supply, were especially hard-pressed to deliver the quantities of water desired. A number of systems had to institute water rationing procedures during the summer and fall. (See figure 3.)

Ground-water levels continued to decline across the entire State during the 1981 water year. The last two years have been characterized by a rapid change in ground-water levels. The fall of 1979 began with record high-water levels but levels had fallen to below normal by the fall of 1980. The downward trend continued through the 1981 water year with many wells establishing new record monthly and some all-time record lows during the spring and summer of 1981. Water levels were below normal in several key shallow index wells on the Piedmont for the entire year. (See figure 4.) In many wells the normal seasonal trend toward rising water levels during the spring was missing or much subdued due to lack of recharge as a result of a very dry fall and spring. Water levels were continuing to decline at the end of the water year.

There were numerous well-publicized news-media reports about wells going dry or reservoir levels dropping, especially on the Piedmont and Coastal Plain. Restrictions were placed on patrons of public water supplies in many communities in the eastern two-thirds of the State. The Tidewater area was especially hard pressed as surface-water sources dwindled. Existing backup wells were unable to meet the demands and water consumption had to be rationed.

Dissolved-solids concentrations at most stations during the 1981 water year were considerably above normal as a result of low flows during this period. At James River at Buchanan, dissolved-solids concentrations were 50 percent higher than the mean concentration for the previous ten years.

Concentrations of trace metals and residues of pesticides were nearly always far below critical concentrations for various uses. However, during a peak runoff event on May 30, the total recoverable lead concentration exceeded 200 ug/l at James River at Cartersville. The source of the lead is unknown at this time.

Chemical and biological sampling on the James River at Cartersville revealed a large bloom of Anabaena at the end of September 1981. Chlorophyll a was measured at 170 ug/l and cells numbered 160,000 per milliliter. This bloom was transported downstream and caused severe taste and odor problems in the city of Richmond's drinking water during the month of October. A bloom of this proportion is rare for the James River and most likely occurred because of extremely low flows, favorable light conditions, and warm temperatures. Nutrient concentrations were not atypically high at this time but are nearly always adequate in the summer months to support an algal bloom given proper flow and weather conditions.

Suspended-sediment loads in the State were much lower in 1981 than in the previous year or the previous ten years. Drought conditions throughout the State are responsible for this phenomenon. The following table for three selected sites illustrates this pattern.

Gaging Station	Annual discharge (cfs-days)			Suspended-sediment load (tons)		
	Previous 10 years	1980	1981	Previous 10 years	1980	1981
Rappahannock River at Remington, Va.	323,000	386,000	91,700	145,000	102,000	19,100
Dan River at Paces, Va.	1,222,000	1,210,000	478,000	702,000	444,000	86,400
Levisa Fork at Big Rock, Va.	166,000	127,000	92,400	505,000	404,000	193,000

RECORDS COLLECTED BY THE STATE OF VIRGINIA

In addition to data collected by the U.S. Geological Survey, there are included herein records for 95 gaging stations and 17 index wells operated by the Virginia State Water Control Board. These records are published as furnished and are acknowledged in the "COOPERATION" paragraph of each individual station. The State Water Control Board is under the direction of Robert V. Davis, executive director. Published material for the gaging-station records and the ground-water wells is supplied, respectively, through the Bureau of Surveillance and Field Studies, Raymond E. Bowles, director, and the Bureau of Water Control Management, Dale F. Jones, director.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting inch-pound units to International System of Units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is the primary energy donor in cellular life process. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by micro-organisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/S, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment) that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved is that material in a representative water sample which passes through a 0.45 um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton benthic organisms and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay..........	0.00024 - 0.004	Sedimentation.
Silt..........	.004 - .062	Sedimentation.
Sand..........	.062 - 2.0	Sedimentation or sieve.
Gravel........	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass, or volume.

Periphyton is the assemblage of microorganisms attached to and growing upon solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton is a useful indicator of water quality.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg $C/(m^2.time)$ for periphyton and macrophytes and mg $C/(m^3.time)$] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg $O_2/(m^2.time)$ for periphyton and macrophytes and mg $O_2/(m^3.time)$] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Recoverable from bottom material refers to the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge times mg/L times 0.0027.

Suspended-sediment load is the quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multi-plate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total." Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	Hexageria
Species	Hexagenia limbata

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total refers to the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Total in bottom material refers to the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual basic-data reports.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indentation in a list of stations in the front of the report. Each indentation represents one rank. This downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 03041000, which appears just to the left of the station name, includes the 2-digit part number "03" plus the 6-digit downstream order number "041000".

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 below.

A second well-numbering system used in Virginia utilizes 7 1/2-minute quadrangles within the State. The quadrangles are numbered from west to east, and lettered from south to north, omitting the letters "I" and "O." The designation for each quadrangle is determined by the method "Read Right, Up." Wells are numbered serially within each quadrangle. This local well number is shown immediately after the primary well number.

Well records furnished by the State of Virginia also include the well number that is based on an indexing system used by the State Water Control Board.

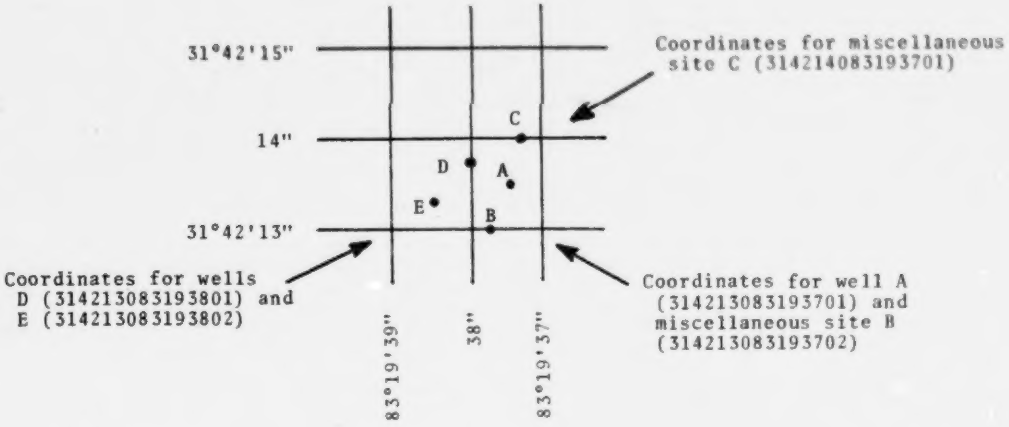

31°42'15"
14"
31°42'13"
C
D
A
E
B
Coordinates for miscellaneous site C (314214083193701)
Coordinates for wells D (314213083193801) and E (314213083193802)
Coordinates for well A (314213083193701) and miscellaneous site B (314213083193702)
83°19'39"
38"
83°19'37"

Figure 1. System for numbering wells and miscellaneous sites (latitude and longitude)

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard textbooks, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables; then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by hydrologists and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations, there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revisions, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use, the datum of the present gage referred to National Geodetic Vertical Datum, and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 6.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

Those records which have been computed and furnished by the Virginia State Water Control Board are identified under "COOPERATION."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with "EXTREMES FOR THE CURRENT YEAR"; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following "EXTREMES FOR THE CURRENT YEAR," for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharges are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation, or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft^3/s; to tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures above 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations, such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the offices whose addresses are given on the back of the title page of this report. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22902, maintains an index of records of discharge collected by other agencies but not published by the Geological Survey. Information on records available at specific sites can be obtained upon request.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface-water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 1.

Measurements are made in many types of wells under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will insure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either National Geodetic Vertical Datum of 1929 (NGVD) or land-surface datum (lsd). National Geodetic Vertical Datum of 1929 is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above National Geodetic Vertical Datum of 1929 is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and at the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office).

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature--influential factors, field measurement, and data presentation*, by H. H. Stevens, Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W. W. Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages.

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6. 1968. 13 pages.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2. 1976. 172 pages.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages.

3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2. 1970. 59 pages.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages.

4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A1. 1968. 39 pages.

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages.

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972. 18 pages.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages.

5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M. W. Skougstad and others, editors: USGS--TWRI Book 5, Chapter A1. 1979. 626 pages.

5-A2. *Determination of minor elements in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages.

5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages.

5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P. E. Greeson, T. A. Ehlke, G. A. Irwin, B. W. Lium, and K. V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages.

5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L. L. Thatcher, V. J. Janzer, and K. W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages.

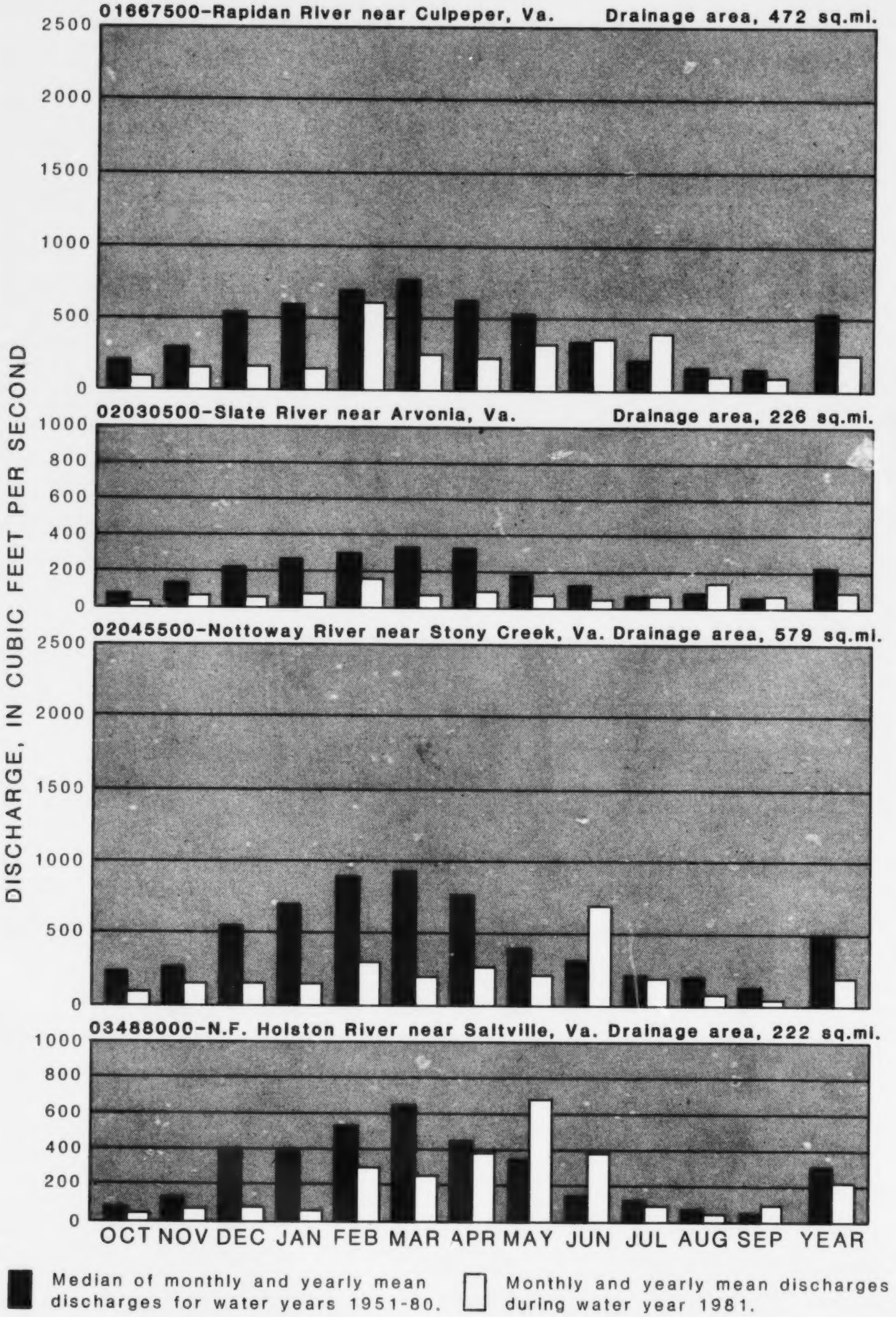
5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages.

7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L. F. Konikow and J. D. Bredehoeft: USGS--TWRI Book 7, Chapter C2. 1978. 90 pages.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages.



01667500-Rapidan River near Culpeper, Va. Drainage area, 472 sq.mi.

02030500-Slate River near Arvonia, Va. Drainage area, 226 sq.mi.

02045500-Nottoway River near Stony Creek, Va. Drainage area, 579 sq.mi.

03488000-N.F. Holston River near Saltville, Va. Drainage area, 222 sq.mi.

Figure 2. -- Discharge during 1981 water year compared with median discharge for period 1951-80 for four representative gaging stations.

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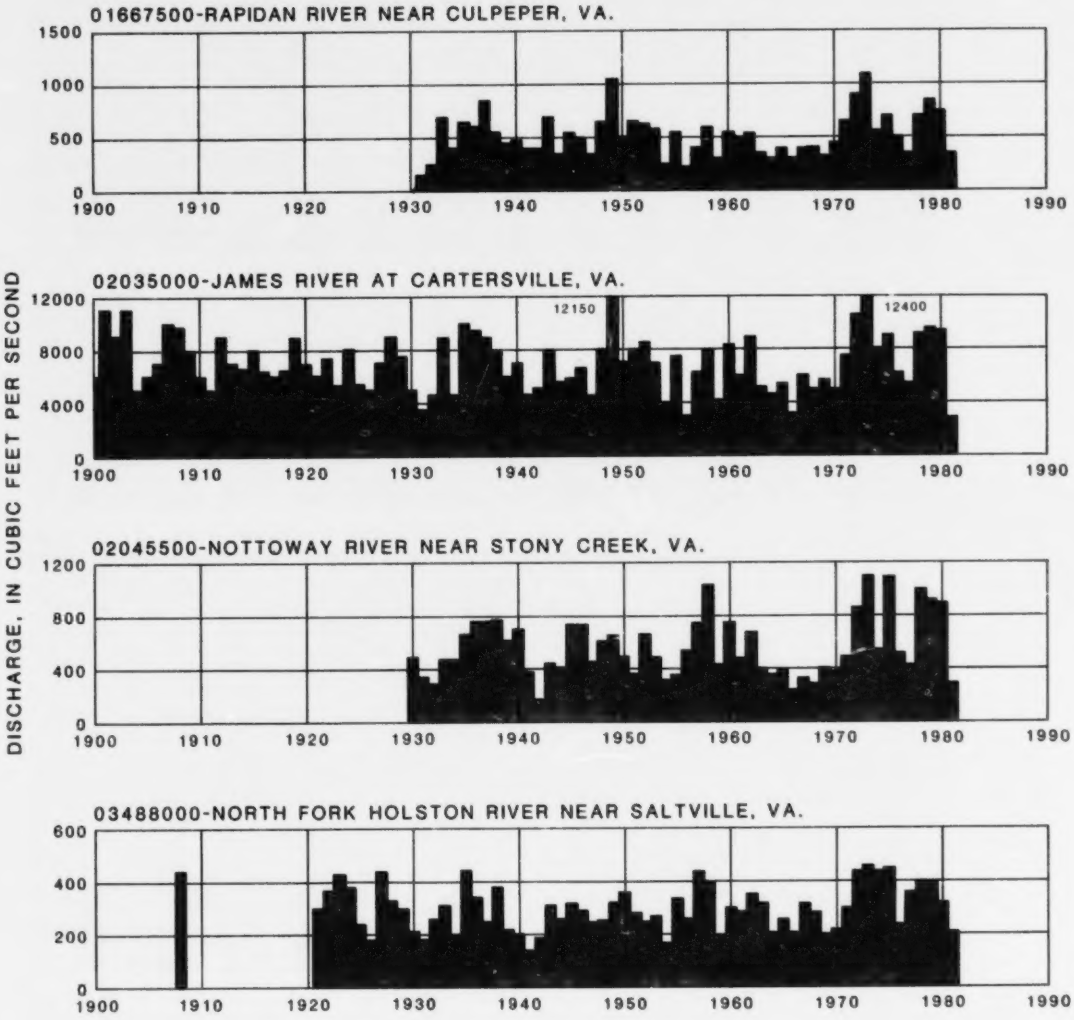


01667500-RAPIDAN RIVER NEAR CULPEPER, VA.

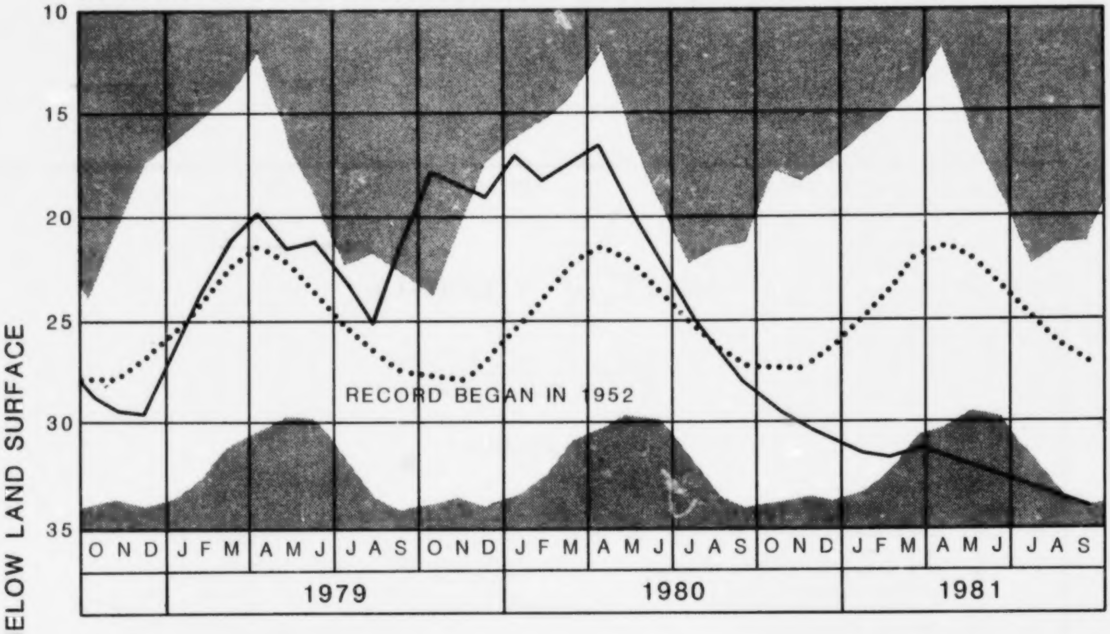
02035000-JAMES RIVER AT CARTERSVILLE, VA.

02045500-NOTTOWAY RIVER NEAR STONY CREEK, VA.

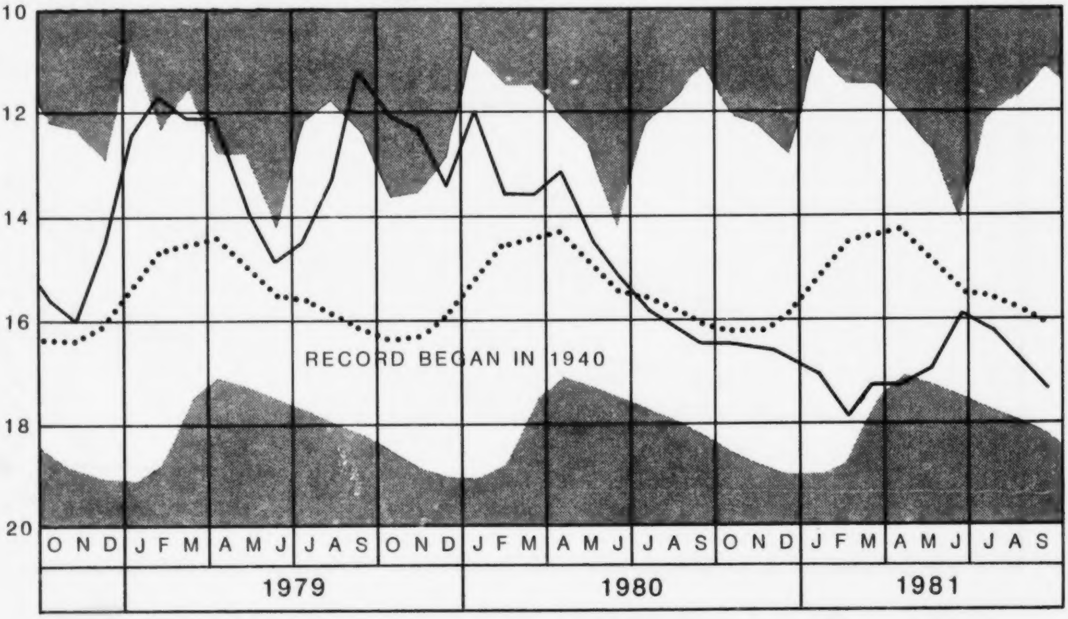
03488000-NORTH FORK HOLSTON RIVER NEAR SALTVILLE, VA.

Figure 3. -- Annual mean discharge at selected gaging stations.

380217078133701-TYLER WELL, LOUISA COUNTY, VA.



371644077244601-MATOAKA MANOR WELL, COLONIAL HEIGHTS, VA.



UNSHADED AREA--Indicates range between highest and lowest recorded monthly water levels, prior to the indicated year.

SOLID LINE--Indicates near monthend water level for the indicated year.

DOTTED LINE--Indicates average of the recorded monthly water levels, prior to indicated year.

Figure 4. -- Monthly ground-water levels at key observation wells.

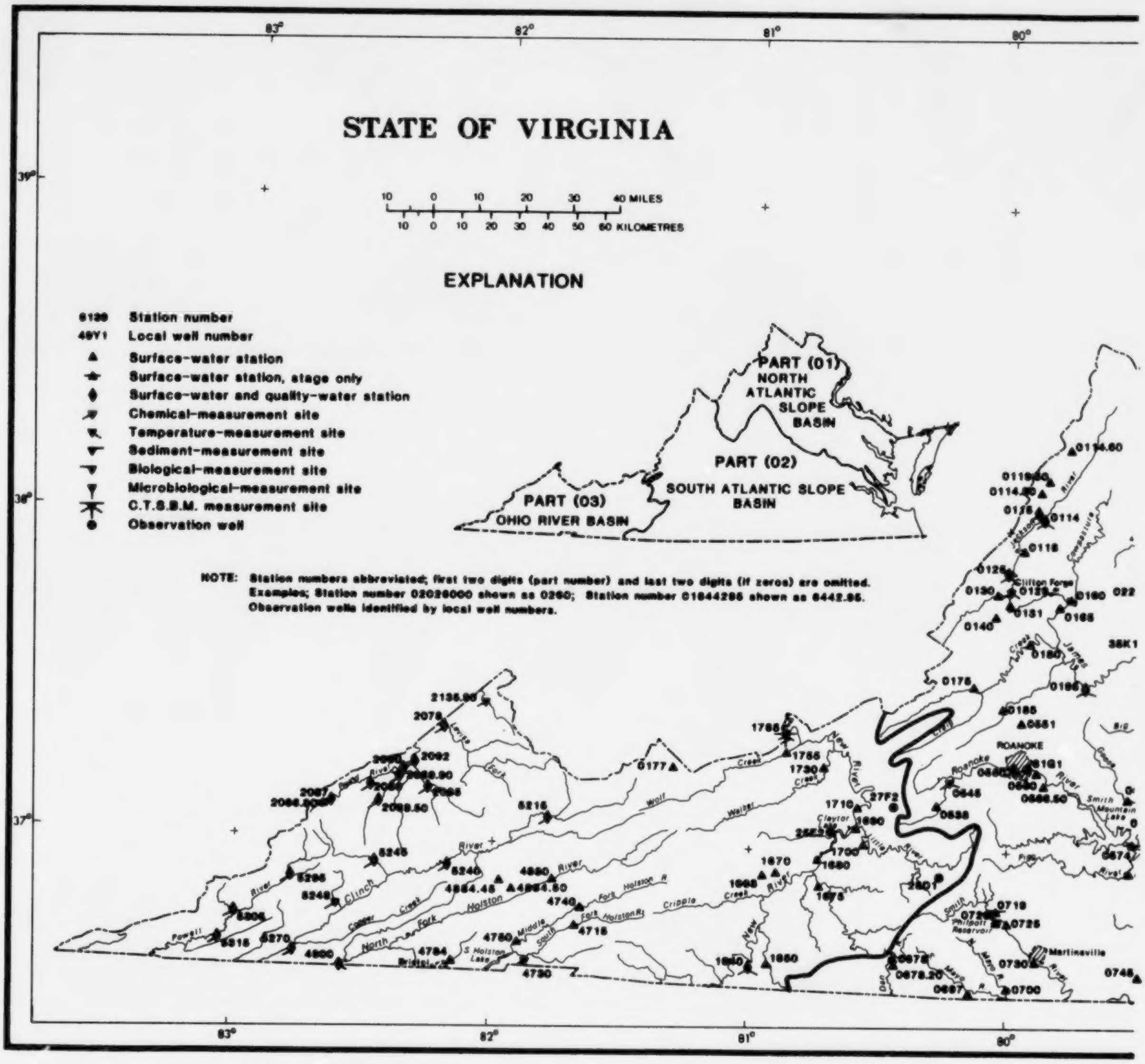
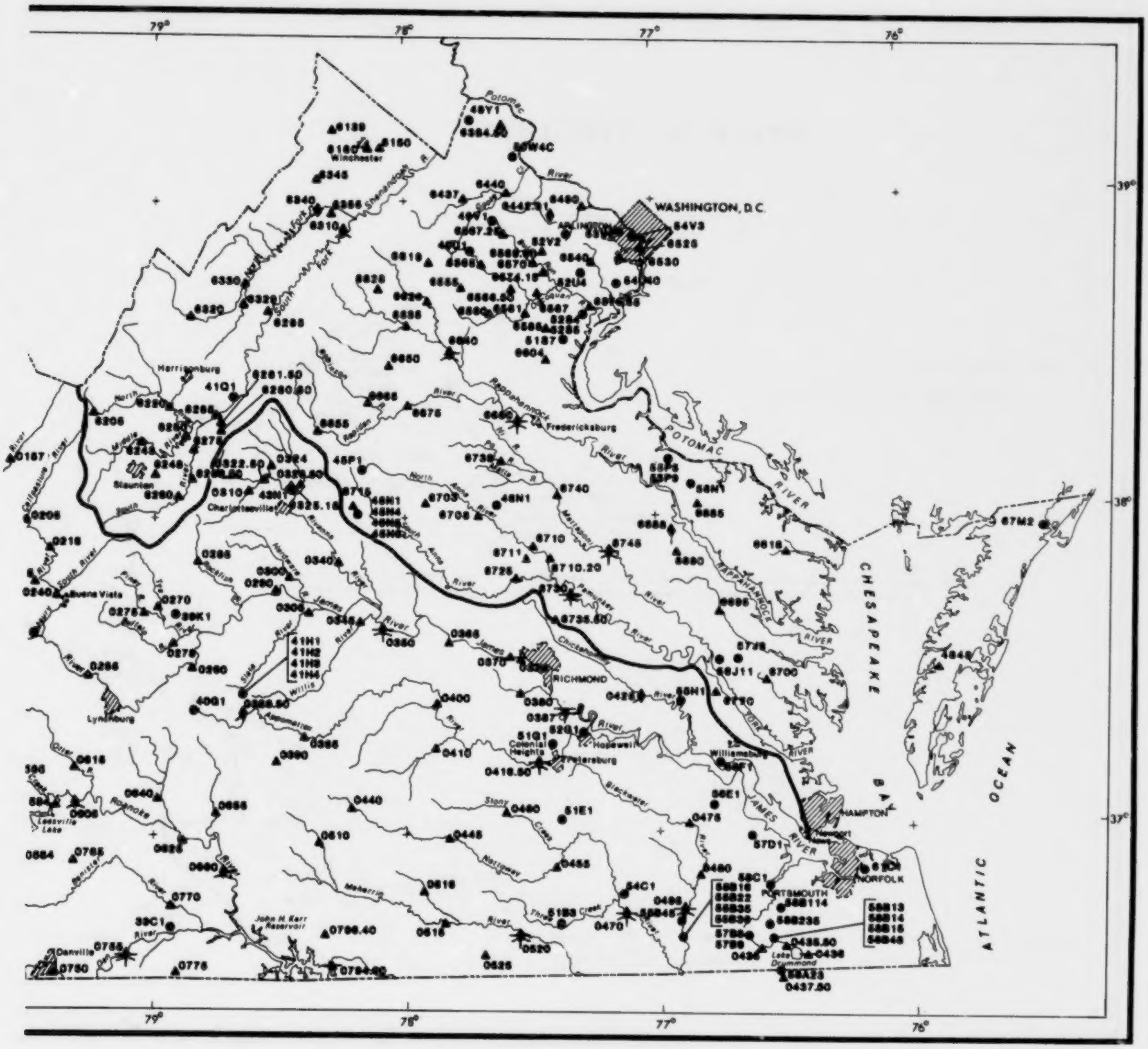

STATE OF VIRGINIA
10 0 10 20 30 40 MILES
10 0 10 20 30 40 50 60 KILOMETRES
EXPLANATION
6130 Station number
49V1 Local well number
▲ Surface-water station
Surface-water station, stage only
◆ Surface-water and quality-water station
Chemical-measurement site
Temperature-measurement site
Sediment-measurement site
Biological-measurement site
Microbiological-measurement site
C.T.S.B.M. measurement site
● Observation well
PART (01) NORTH ATLANTIC SLOPE BASIN
PART (02) SOUTH ATLANTIC SLOPE BASIN
PART (03) OHIO RIVER BASIN
NOTE: Station numbers abbreviated; first two digits (part number) and last two digits (if zeros) are omitted. Examples; Station number 02026000 shown as 0260; Station number 01644285 shown as 6442.85. Observation wells identified by local well numbers.
83°
82°
81°
80°
39°
38°
37°
2135.90
2078
Levisa
Fork
2092
2067
2066.50
2088.50
Russell
5215
5245
River
Clinch
5240
5296
5248
5305
Powell
5315
5270
4800
Copper
Creek
North
Fork
Holston
4880
4864.45
4864.50
River
4740
Fork Holston R
4715
Middle
South
4750
4784
Bristol
S Holston Lake
4730
0177
Wolf
Creek
Walker
1765
1755
1730
Creek
New
River
27F2
1710
Claytor Lake
1690
1700
Little
River
1680
1670
1665
1675
Cripple
Creek
New
1660
1650
2601
Craig
0114.60
River
0114.50
0116
0114
Jackson
0118
Cowpasture
0125
Clifton Forge
0130
0160
022
0131
0140
0165
Creek
0180
James
35K1
0175
0185
0551
Big
ROANOKE
Roanoke
0545
0535
River
0555.50
Smith
Mountain
Lake
Pigg
River
Smith
0719
Philpott Reservoir
0725
Martinsville
0730
0745
Dan
0678.20
Mayo
R
0687
0700

Figure 5. -- Map of Virginia showing location of data-collection stations.


79°
78°
77°
76°
39°
38°
37°
WASHINGTON, D.C.
Winchester
Potomac
River
Harrisonburg
Staunton
Charlottesville
Fredericksburg
Rappahannock
POTOMAC
RIVER
Buena Vista
James
River
RICHMOND
Lynchburg
Colonial Heights
Petersburg
Hopewell
Williamsburg
HAMPTON
Newport
NORFOLK
PORTSMOUTH
Lake Drummond
CHESAPEAKE
BAY
ATLANTIC
OCEAN
Danville
John H. Kerr Reservoir
Leesville Lake
Meherrin
Nottoway
Blackwater
Stony Creek
Appomattox
Roanoke
Otter
Shenandoah
Mattaponi
Pamunkey
Chickahominy
North Anna River
South Anna River
RAPPAHANNOCK RIVER
YORK RIVER
JAMES RIVER
41H1
41H2
41H3
41H4
58B13
58B14
58B15
58B43
0437.50
58A23
0435.50
0436
6565
6525
6530
54V3
0750
0755
0775
0784.60
0796.40
0620
0625
0615
0470
0485
0455
0445
0440
0410
0416.50
0400
0390
0395
0350
0370
0380
0387
0300
0290
0280
0270
0275
0260
0256
0240
0216
0205
0187
6205
6260
6240
6245
6250
6270
6281.50
6280.60
0322.50
0324
0325.10
0310
43H
45P1
46N1
6715
6710
6711
6725
6730
6735.50
6740
6745
6700
6705
6710.20
6675
6665
6655
6660
6650
6640
6555
6520
6320
6330
6340
6310
6355
6345
6150
6160
6135
6384
48Y1
52W4C
6437
6440
6480
41Q1
6620
6615
6880
6885
6690
6695
5725
56H1
56J11
0425
57D1
56E1
59C1
58B114
58B235
57B8
5799
51G1
52G1
54C1
51E1
0460
0480
0476
0475
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0660
0655
0650
0640
0615
0610
0606
0684
0700
67M2
6813

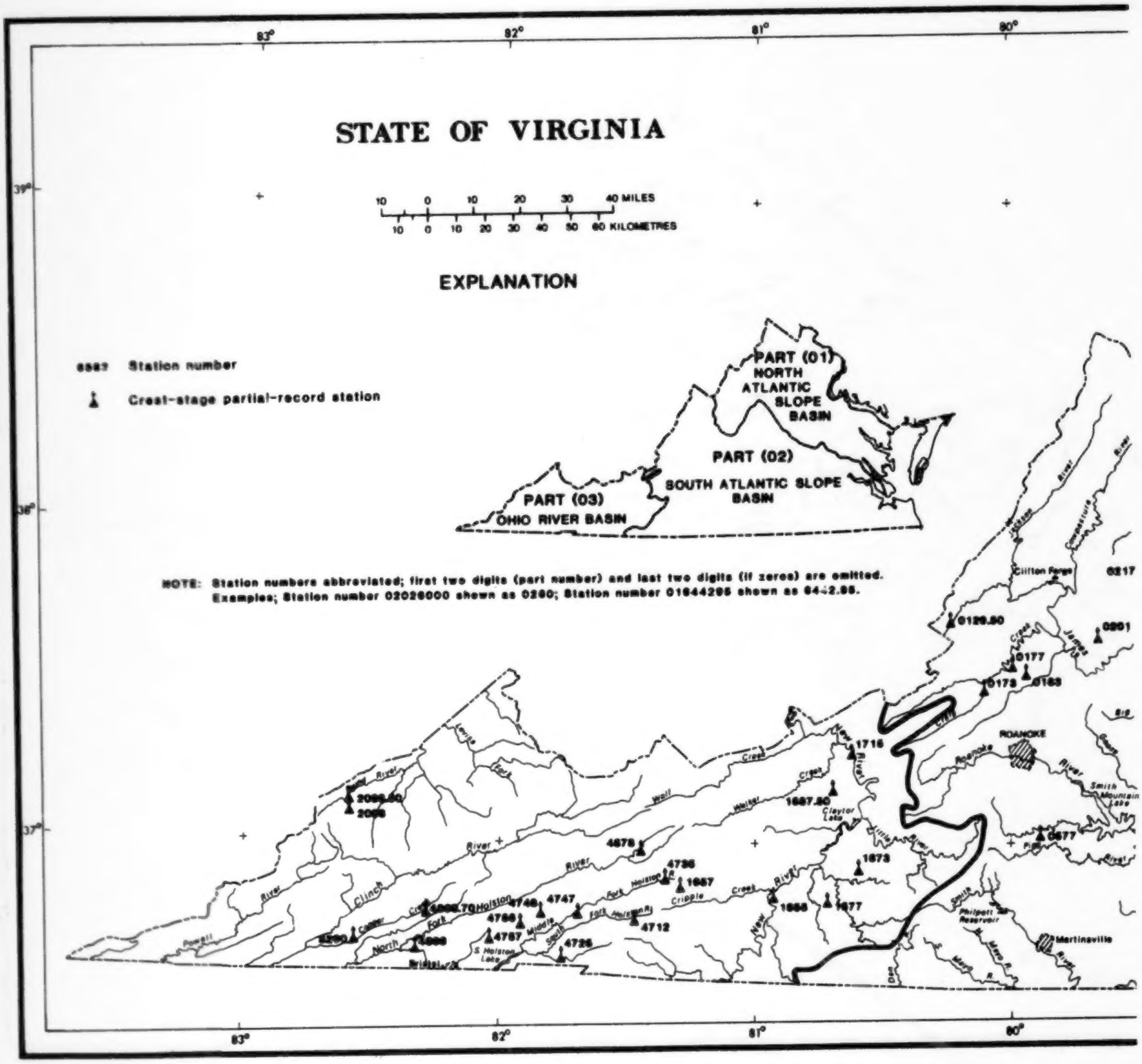
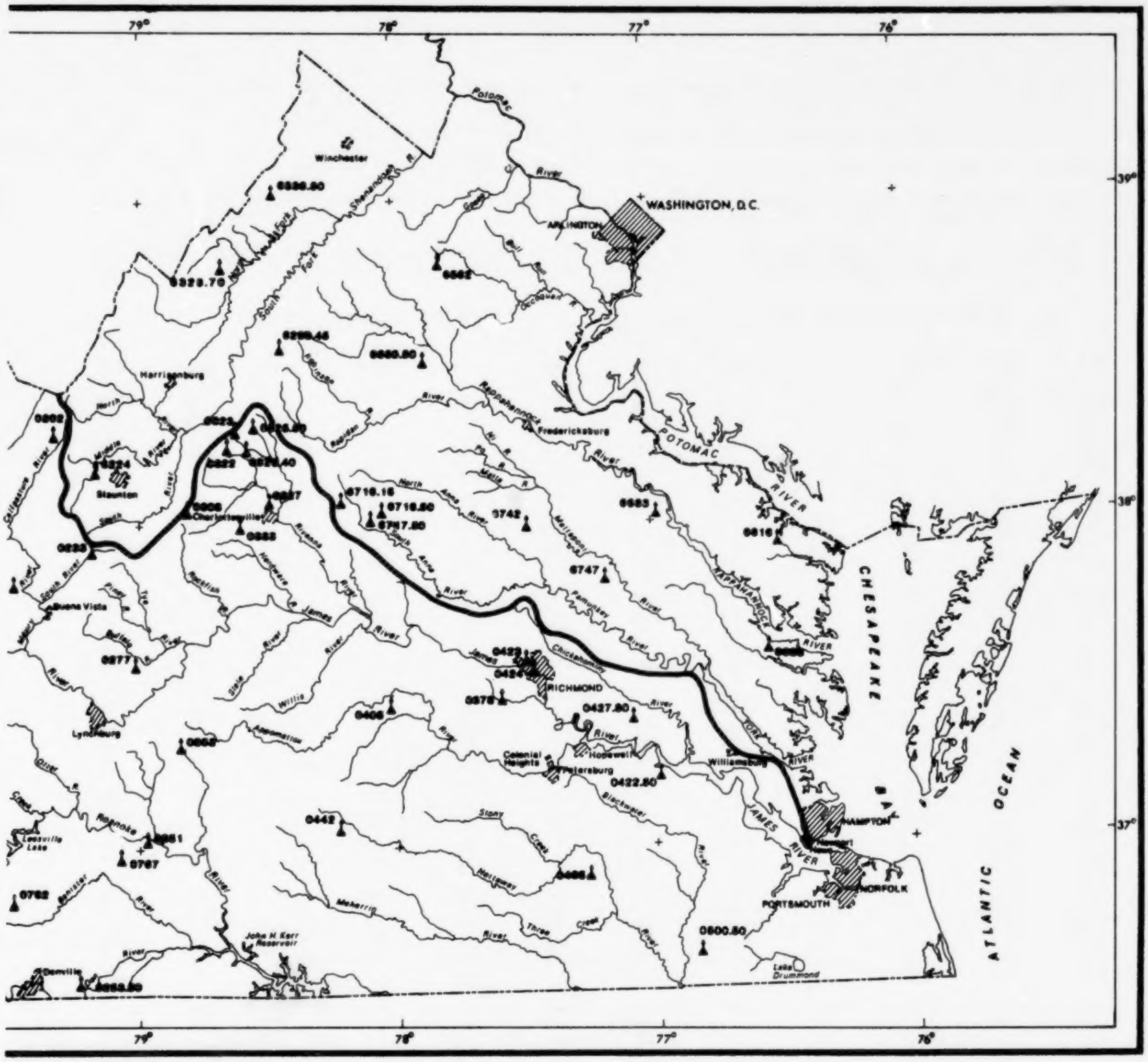

83°
82°
81°
80°
39°
38°
37°
STATE OF VIRGINIA
10 0 10 20 30 40 MILES
10 0 10 20 30 40 50 60 KILOMETRES
EXPLANATION
6587 Station number
Crest-stage partial-record station
PART (01) NORTH ATLANTIC SLOPE BASIN
PART (02) SOUTH ATLANTIC SLOPE BASIN
PART (03) OHIO RIVER BASIN
NOTE: Station numbers abbreviated; first two digits (part number) and last two digits (if zeros) are omitted. Examples; Station number 02026000 shown as 0260; Station number 01644295 shown as 6442.95.
Clifton Forge
0217
0129.90
0201
0177
0173
0163
ROANOKE
1716
1687.90
Claytor Lake
1673
1665
1677
0677
Smith Mountain Lake
Philpott Reservoir
Martinsville
2099.50
2096
4676
4736
1667
4747
4746
4766
4767
4712
4726
5260
5000.70
5000
S. Holston Lake
Bristol
Clinch
Powell
Holston
North
Fork
Middle
South
Cripple
Creek
New
River
Walker
Wolf
Little
Roanoke
Smith
Mayo R.
Dan
Jackson
Cowpasture
James
Big

Figure 6. -- Map of Virginia showing location of crest-stage partial-record stations.

WATER RESOURCES DATA FOR VIRGINIA, 1981


79°
78°
77°
76°
39°
38°
37°
Potomac
River
WASHINGTON, D.C.
ARLINGTON
Winchester
Harrisonburg
Staunton
Charlottesville
Fredericksburg
Buena Vista
Lynchburg
RICHMOND
Hopewell
Colonial Heights
Petersburg
Williamsburg
HAMPTON
PORTSMOUTH
NORFOLK
Danville
Leesville Lake
John H Kerr Reservoir
Lake Drummond
Shenandoah R.
South Fork
North Fork
Goose
Bull Run
Occoquan R.
Rappahannock
Rapidan R.
North
Middle
South
Calfpasture River
South River
Rivanna
Hardware
James
Slate
Willis
Appomattox
Roanoke
Banister
Meherrin
Nottoway
Stony Creek
Three Creek
Blackwater
North Anna River
South Anna
Pamunkey River
Mattaponi
Chickahominy
POTOMAC RIVER
RAPPAHANNOCK RIVER
YORK RIVER
JAMES RIVER
CHESAPEAKE BAY
ATLANTIC OCEAN
6710.15
0742
6747
0423
0424
0437.80
0422.80
0406
0442
0277
0762
0767
0500.80
0816
0663

GAGING-STATION RECORDS

NORTH ATLANTIC SLOPE BASINS

NASSAWADOX CREEK BASIN

01484800 GUY CREEK NEAR NASSAWADOX, VA

LOCATION.--Lat 37°30'08", long 75°52'22", Northampton County, Hydrologic Unit 02080109, on left bank 25 ft (8 m) upstream from bridge on State Highway 606, 1.9 mi (3.1 km) northwest of Nassawadox, and 2.1 mi (3.4 km) upstream from mouth.

DRAINAGE AREA.--1.72 mi² (4.45 km²).

PERIOD OF RECORD.--November 1963 to current year.

GAGE.--Water-stage recorder and wooden control. Datum of gage is 11.67 ft (3.557 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--17 years (water years 1965-81), 1.32 ft³/s (0.037 m³/s), 10.42 in/yr (265 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78 ft³/s (2.21 m³/s) July 31, 1979, gage height, 5.28 ft (1.609 m); no flow at times in 1964, 1966, and 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 71 ft³/s (2.01 m³/s) at 1600 hours June 19, gage height, 5.12 ft (1.561 m), no other peak above base of 20 ft³/s (0.57 m³/s); no flow part of each day June 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.21	.17	.38	.38	.38	.36	.29	.31	.07	.42	.23	.47
2	.21	.15	.38	.43	.70	.33	.35	.33	.08	.34	.25	.41
3	.21	.14	.38	.43	.48	.30	.35	.31	.07	.42	.28	.39
4	.25	.17	.33	.35	.38	.33	.36	.28	.06	1.4	.35	.36
5	.25	.21	.38	.33	.34	1.0	.65	.29	.06	.91	.29	.34
6	.17	.21	.43	.31	.32	.67	1.9	.32	.05	3.2	.48	.29
7	.15	.21	.39	.29	.38	.52	.91	.31	.15	1.9	.51	.30
8	.17	.17	.43	.28	.70	.46	.67	.31	.06	1.2	.42	.98
9	.15	.17	.43	.28	.55	.43	.58	.33	.06	.90	.44	.80
10	.17	.21	.55	.28	.48	.41	.47	.42	.09	.76	.37	.32
11	.17	.25	.48	.29	.79	.38	.44	1.1	.06	.62	.42	.25
12	.21	.21	.43	.29	.62	.38	.41	.62	.06	.53	.51	.21
13	.25	.21	.43	.29	.48	.37	.63	.44	.06	.52	.38	.17
14	.29	.22	.43	.33	.48	.40	.52	.37	.06	.50	.32	.15
15	.29	.23	.43	.38	.43	.38	.49	.60	.05	.42	.24	.39
16	.21	.23	.38	.38	.43	.59	.41	.84	.04	.43	.22	2.3
17	.17	.25	.38	.38	.43	.64	.38	.39	.03	.46	.18	.93
18	.17	.70	.33	.38	.38	.50	.34	.30	.03	.42	.15	.59
19	.38	.33	.32	.38	.38	.48	.27	.92	20	.36	.18	.45
20	.38	.29	.30	.38	.61	.44	.90	.71	8.5	.34	.37	.35
21	.29	.33	.29	.79	.78	.41	.65	.47	3.5	.43	.32	.29
22	.25	.33	.33	.62	.61	.37	.47	.33	2.2	.49	2.9	.26
23	.21	.29	.48	.48	.57	.42	.41	.24	1.1	.36	2.9	.23
24	.17	.43	.48	.43	.52	.40	.51	.18	.80	.28	1.2	.21
25	2.1	.48	.43	.38	.44	.35	.37	.13	.57	.28	.80	.19
26	.29	.38	.38	.35	.43	.29	.31	.10	.47	.25	.63	.16
27	.17	.38	.36	.34	.43	.32	.31	.08	.38	.23	.53	.13
28	.15	.55	.43	.33	.38	.29	.31	.17	.33	.47	.45	.13
29	.17	.43	.55	.32	---	.29	.28	.24	.31	.65	.43	.12
30	.21	.43	.48	.32	---	.35	.28	.12	.30	.32	.52	.13
31	.21	---	.38	.31	---	.31	---	.08	---	.25	.58	---
TOTAL	8.68	8.76	12.58	11.51	13.90	13.17	15.22	11.64	39.60	20.06	17.85	12.30
MEAN	.28	.29	.41	.37	.50	.42	.51	.38	1.32	.65	.58	.41
MAX	2.1	.70	.55	.79	.79	1.0	1.9	1.1	20	3.2	2.9	2.3
MIN	.15	.14	.29	.28	.32	.29	.27	.08	.03	.23	.15	.12
CFSM	.16	.17	.24	.22	.29	.24	.30	.22	.77	.38	.34	.24
IN.	.19	.19	.27	.25	.30	.28	.33	.25	.86	.43	.39	.27

CAL YR 1980 TOTAL 553.11 MEAN 1.51 MAX 13 MIN .06 CFSM .88 IN 11.96
WTR YR 1981 TOTAL 185.27 MEAN .51 MAX 20 MIN .03 CFSM .30 IN 4.00

01613900 HOGUE CREEK NEAR HAYFIELD, VA

LOCATION.--Lat 39°12'52", long 78°17'18", Frederick County, Hydrologic Unit 02070004, on right bank 15 ft (5 m) upstream from bridge on State Highway 614, 0.8 mi (1.3 km) upstream from Gap Run, and 1.3 mi (2.1 km) southeast of Hayfield.

DRAINAGE AREA.--15.0 mi² (38.8 km²).

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 668.60 ft (203.789 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--21 years, 14.6 ft³/s (0.413 m³/s), 13.22 in/yr (336 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,760 ft³/s (78.2 m³/s) June 22, 1972, gage height, 8.85 ft (2.697 m), from rating curve extended above 870 ft³/s (25 m³/s); no flow for part of Sept. 14, 1968, cause unknown.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 128 ft³/s (3.62 m³/s) Apr. 13, gage height, 2.05 ft (0.625 m), no peak above base of 400 ft³/s (11 m³/s); minimum, 0.06 ft³/s (0.002 m³/s) Aug. 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	3.0	4.1	2.0	1.4	9.8	3.9	27	9.8	3.9	3.6	1.0
2	2.2	3.0	4.1	2.0	2.5	8.4	7.2	37	17	3.9	3.3	1.0
3	2.2	3.0	3.9	2.0	7.6	7.2	6.0	23	26	4.8	3.6	1.3
4	2.2	3.3	3.9	1.6	7.4	6.0	5.6	17	50	14	3.6	1.7
5	2.2	3.0	3.9	1.2	5.0	8.9	5.6	13	29	11	2.8	1.6
6	2.0	3.0	3.6	1.2	5.0	10	5.2	12	22	8.9	2.8	1.4
7	1.7	3.3	3.6	1.2	5.0	12	4.8	9.8	17	7.2	3.0	1.3
8	1.7	3.3	3.6	1.1	4.8	10	4.4	7.6	13	6.0	2.8	1.7
9	1.7	3.9	3.3	1.1	4.8	9.3	4.8	6.8	11	4.4	2.2	1.4
10	1.6	3.6	3.3	.80	4.4	8.4	4.8	6.8	13	2.2	1.4	.92
11	1.6	3.3	3.0	.45	41	8.0	10	9.3	11	2.5	2.0	.66
12	1.6	3.3	3.0	.35	20	7.2	26	14	8.9	2.2	2.2	.53
13	1.6	3.3	2.8	.30	11	6.0	93	11	7.6	2.2	.92	.53
14	1.7	3.3	2.5	.30	9.0	5.2	54	9.3	40	3.3	.92	.53
15	1.7	3.3	2.5	.30	8.0	4.1	41	9.8	17	2.8	.92	.92
16	1.7	3.9	2.5	.60	7.0	5.6	31	9.3	11	2.8	1.2	4.1
17	1.7	4.4	2.5	.90	7.0	6.4	25	6.8	8.4	2.8	.92	1.4
18	3.0	8.9	2.2	2.0	6.8	5.2	23	6.4	6.4	2.5	.79	.79
19	4.1	5.6	2.5	3.0	8.9	4.4	17	12	5.6	2.5	.79	.53
20	3.6	3.4	2.2	4.1	80	4.1	18	17	8.9	3.0	.83	.53
21	3.9	2.8	2.2	3.9	54	3.9	14	12	7.6	3.3	.20	.53
22	3.9	2.2	1.7	3.6	35	3.6	12	9.8	23	2.8	.32	.53
23	3.6	2.2	1.2	3.0	37	3.3	12	8.0	9.8	2.5	.37	.66
24	3.9	35	.92	2.0	39	3.0	12	7.6	6.4	2.8	.40	.40
25	11	18	.79	1.6	25	2.8	9.8	4.4	4.8	3.0	.53	.40
26	5.2	8.9	.66	2.8	18	2.5	7.6	3.6	3.9	4.1	.53	.40
27	3.9	6.8	.53	4.1	14	2.8	8.4	3.6	3.0	4.8	.53	.40
28	3.6	8.4	.40	3.6	12	2.5	8.0	6.0	3.3	12	.66	.53
29	3.3	6.8	.40	3.0	---	2.5	7.2	16	3.3	14	.66	.53
30	3.0	5.2	1.0	3.3	---	3.3	6.8	9.3	3.9	6.0	.66	.53
31	3.0	---	1.5	2.0	---	3.6	---	10	---	4.1	.92	---
TOTAL	89.8	171.4	74.30	59.40	480.6	180.0	488.1	355.2	401.6	152.3	46.37	28.75
MEAN	2.90	5.71	2.40	1.92	17.2	5.81	16.3	11.5	13.4	4.91	1.50	.96
MAX	11	35	4.1	4.1	80	12	93	37	50	14	3.6	4.1
MIN	1.6	2.2	.40	.30	1.4	2.5	3.9	3.6	3.0	2.2	.20	.40
CFSM	.19	.38	.16	.13	1.15	.39	1.09	.77	.89	.33	.10	.06
IN.	.22	.43	.18	.15	1.19	.45	1.21	.88	1.00	.38	.11	.07

CAL YR 1980 TOTAL 5178.50 MEAN 14.1 MAX 191 MIN .40 CFSM .94 IN 12.84
WTR YR 1981 TOTAL 2527.82 MEAN 6.93 MAX 93 MIN .20 CFSM .46 IN 6.27

01615000 OPEQUON CREEK NEAR BERRYVILLE, VA

LOCATION.--Lat 39°10'40", long 78°04'20", Frederick County, Hydrologic Unit 02070004, on left bank between the bridges on State Highway 7, 0.2 mi (0.3 km) upstream from Abrams Creek, and 5.0 mi (8.0 km) west of Berryville.

DRAINAGE AREA.--57.4 mi^2 (148.7 km^2).

PERIOD OF RECORD.--October 1943 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-72-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 503.24 ft (153.388 m) National Geodetic Vertical Datum of 1929. Prior to July 26, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by mills above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 41.6 ft^3/s (1.178 m^3/s), 9.84 in/yr (250 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft^3/s (300 m^3/s) Nov. 13, 1970, gage height, 12.82 ft (3.908 m), from rating curve extended above 4,800 ft^3/s (140 m^3/s); minimum daily, 0.20 ft^3/s (0.006 m^3/s) Sept. 12, 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 18.4 ft (5.61 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 973 ft^3/s (27.6 m^3/s) at 2300 hours June 3, gage height, 5.42 ft (1.652 m), no other peak above base of 850 ft^3/s (24 m^3/s); minimum daily, 2.5 ft^3/s (0.071 m^3/s) Jan. 13, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.4	8.6	8.9	7.6	8.0	27	12	38	29	12	8.3	5.3
2	7.4	8.3	8.6	7.3	40	21	20	76	47	12	7.6	5.0
3	8.0	8.3	9.2	6.9	41	19	16	38	146	12	7.3	4.3
4	8.0	8.3	8.7	6.9	25	16	14	26	278	46	7.3	4.3
5	7.9	8.6	8.8	6.8	17	22	14	21	67	30	7.0	5.0
6	7.0	8.6	8.5	6.4	14	36	14	19	43	18	6.8	5.0
7	6.8	8.3	8.3	5.4	14	36	12	18	34	14	7.6	4.5
8	6.8	8.3	8.2	6.2	12	28	12	15	26	12	7.0	4.3
9	7.0	8.9	8.4	5.0	13	24	12	13	23	11	8.3	4.8
10	7.0	9.6	8.5	3.5	11	21	12	13	27	9.9	6.5	4.0
11	7.0	11	8.1	3.0	84	19	31	15	24	9.6	5.5	3.4
12	7.0	9.4	8.0	2.6	69	17	56	21	19	9.9	5.5	3.2
13	7.0	8.9	8.0	2.5	36	16	208	16	36	9.2	5.5	3.1
14	7.0	9.2	7.7	2.5	24	14	103	14	164	8.9	5.3	3.1
15	7.3	9.2	7.5	2.7	19	13	87	13	50	8.6	5.3	3.2
16	7.4	9.4	7.6	3.0	16	14	50	13	29	8.3	4.8	7.3
17	7.3	10	7.6	5.0	15	14	38	12	23	8.6	4.8	6.3
18	8.0	21	7.1	7.0	16	13	33	12	19	8.3	4.8	4.5
19	6.8	17	7.7	9.0	20	13	26	17	18	8.6	4.8	3.8
20	8.3	9.4	7.3	13	193	13	25	24	52	8.0	4.5	3.6
21	7.6	8.6	6.5	15	129	12	21	16	28	8.3	4.3	3.4
22	8.0	8.0	6.5	14	72	12	19	13	36	8.0	4.0	3.4
23	7.6	7.6	6.9	13	120	12	20	12	23	7.6	3.8	3.4
24	8.0	37	7.8	12	111	11	40	11	18	7.6	3.7	3.4
25	25	49	8.9	11	62	11	27	11	16	8.6	3.5	3.4
26	23	17	8.3	9.8	43	11	21	10	15	8.6	3.4	3.6
27	10	12	7.6	9.3	33	11	21	10	14	17	3.3	3.8
28	9.2	13	7.1	9.0	29	11	19	20	13	41	3.2	3.6
29	8.9	13	7.3	8.6	---	10	17	79	12	66	3.2	3.6
30	8.6	9.9	7.8	8.3	---	11	16	24	11	15	3.2	3.6
31	8.3	---	7.4	7.8	---	12	---	56	---	9.9	5.0	---
TOTAL	270.6	375.4	244.8	230.7	1286.0	520	1016	696	1340	462.5	165.1	123.2
MEAN	8.73	12.5	7.90	7.44	45.9	16.8	33.9	22.5	44.7	14.9	5.33	4.11
MAX	25	49	9.2	15	193	36	208	79	278	66	8.3	7.3
MIN	6.8	7.6	6.5	2.5	8.0	10	12	10	11	7.6	3.2	3.1
CFSM	.15	.22	.14	.13	.80	.29	.59	.39	.78	.26	.09	.07
IN.	.18	.24	.16	.15	.83	.34	.66	.45	.87	.30	.11	.08

CAL YR 1980 TOTAL 14610.4 MEAN 39.9 MAX 1430 MIN 6.5 CFSM .70 IN 9.47
WTR YR 1981 TOTAL 6730.3 MEAN 18.4 MAX 278 MIN 2.5 CFSM .32 IN 4.36

01616000 ABRAMS CREEK NEAR WINCHESTER, VA

LOCATION.--Lat 39°10'40", long 78°05'10", Frederick County, Hydrologic Unit 02070004, on right bank 1,000 ft (305 m) upstream from bridge on State Highway 659, 0.9 mi (1.4 km) upstream from mouth, and 4.4 mi (7.1 km) east of Winchester.

DRAINAGE AREA.--16.5 mi^2 (42.7 km^2).

PERIOD OF RECORD.--July 1949 to September 1960, June 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 526.46 ft (160.465 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Slight diurnal fluctuation caused by sewage disposal plant above station at Winchester.

COOPERATION.--Records computed and furnished by Virginia State Water Control Board.

AVERAGE DISCHARGE.--13 years, 18.9 ft^3/s (0.535 m^3/s), 15.56 in/yr (395 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 962 ft^3/s (27.2 m^3/s) Dec. 4, 1950, gage height, 6.16 ft (1.878 m), from rating curve extended above 410 ft^3/s (11.6 m^3/s); minimum, 3.5 ft^3/s (0.099 m^3/s) Oct. 8, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s (5.7 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 28	2130	267	7.56	3.06	0.933	July 28	1900	*435	12.3	3.94	1.201
June 3	2130	266	7.53	3.05	.930						

Minimum discharge, 11 ft^3/s (0.31 m^3/s) Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	18	20	16	14	20	22	37	20	17	18	16
2	22	17	20	15	34	20	20	26	24	17	17	14
3	22	18	20	14	20	19	17	20	54	18	17	14
4	22	20	20	13	19	19	16	19	48	46	17	17
5	19	20	22	14	18	22	16	18	28	22	17	15
6	19	20	22	13	18	20	15	19	24	19	20	15
7	19	20	20	13	16	20	16	18	22	18	18	14
8	20	19	20	13	16	19	16	17	20	19	17	15
9	19	18	22	13	16	18	17	17	20	19	17	14
10	19	17	22	13	17	18	17	17	26	19	17	14
11	19	17	22	12	36	18	22	25	22	18	16	14
12	18	17	22	12	24	19	40	22	20	17	16	14
13	18	17	22	12	22	18	62	18	22	18	16	13
14	19	18	20	12	18	18	39	17	24	18	15	14
15	19	17	22	13	17	17	28	17	20	18	17	15
16	19	17	24	14	17	19	24	17	19	19	15	24
17	18	24	24	17	17	17	22	16	19	19	15	15
18	20	28	24	17	18	17	24	17	18	19	14	14
19	17	20	24	16	20	17	22	26	19	18	14	13
20	17	18	22	17	53	17	24	20	33	19	14	12
21	17	17	22	18	35	17	22	18	26	20	14	13
22	20	17	23	17	26	16	22	18	33	19	14	13
23	19	16	24	17	40	16	22	18	20	19	14	14
24	20	58	26	17	34	17	24	17	18	22	14	13
25	51	28	24	15	26	16	22	17	18	22	15	14
26	20	22	22	16	24	16	20	17	17	33	15	14
27	18	20	20	17	22	16	24	17	17	22	15	13
28	18	24	17	17	22	16	22	46	17	76	15	14
29	18	20	16	16	---	15	20	30	17	38	14	14
30	18	19	16	15	---	18	20	23	17	20	14	15
31	19	---	15	14	---	17	---	24	---	19	18	---
TOTAL	623	621	659	459	659	552	697	648	702	707	489	433
MEAN	20.1	20.7	21.3	14.8	23.5	17.8	23.2	20.9	23.4	22.8	15.8	14.4
MAX	51	58	26	18	53	22	62	46	54	76	20	24
MIN	17	16	15	12	14	15	15	16	17	17	14	12
CFSM	1.22	1.26	1.29	.90	1.42	1.08	1.41	1.27	1.42	1.38	.96	.87
IN.	1.40	1.40	1.49	1.03	1.49	1.24	1.57	1.46	1.58	1.59	1.10	.98

CAL YR 1980 TOTAL 10609 MEAN 29.0 MAX 241 MIN 15 CFSM 1.76 IN 23.92
WTR YR 1981 TOTAL 7249 MEAN 19.9 MAX 76 MIN 12 CFSM 1.21 IN 16.34

01620500 NORTH RIVER NEAR STOKESVILLE, VA

LOCATION.--Lat 38°20'15", long 79°14'25", Augusta County, Hydrologic Unit 02070005, George Washington National Forest, on left bank 575 ft (175 m) upstream from highway bridge, 2.8 mi (4.5 km) upstream from city of Staunton dam, 3.8 mi (6.1 km) upstream from Broad Run, 5.0 mi (8.0 km) west of Stokesville, and 7.8 mi (12.6 km) upstream from Skidmore Fork.

DRAINAGE AREA.--17.2 mi^2 (44.5 km^2).

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1903: 1960. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,054.57 ft (626.233 m) National Geodetic Vertical Datum of 1929. Prior to June 10, 1958, at site 575 ft (175 m) downstream at datum 6.0 ft (1.83 m) lower.

REMARKS.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--35 years, 25.8 ft^3/s (0.731 m^3/s), 20.37 in/yr (517 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,100 ft^3/s (314 m^3/s) June 17, 1949, gage height, 10.9 ft (3.32 m), from floodmarks, site and datum then in use, from rating curve extended above 900 ft^3/s (25 m^3/s) on basis of computation of peak flow over dam; minimum, 0.10 ft^3/s (0.003 m^3/s) Sept. 15, 16, 19-22, 1962, Sept. 7-13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 8.4 ft (2.56 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 210 ft^3/s (5.95 m^3/s) at 1100 hours May 20, gage height, 3.63 ft (1.106 m), no other peak above base of 200 ft^3/s (5.7 m^3/s); minimum daily, 0.28 ft^3/s (0.008 m^3/s) Oct. 16, 17, 20-23.

REVISIONS.--The maximum discharge for calendar and water year 1979 has been revised to 1,200 ft^3/s (34.0 m^3/s) Sept. 5, 1979, gage height, 6.74 ft (2.054 m) from floodmarks; revised daily discharges, in cubic feet per second, for periods in September 1979 are given below. These figures supersede those published in the reports for 1979 and 1980.

Sept. 5.........170
6.........350

Sept. 7.........180
21......... 32

Sept. 22..........200
23..........120

Sept. 24 90

Month	Total	Mean	Max	Min	Cfsm	In.
September 1979	1872	62.4	350	10	3.63	4.05
Wtr Yr 1979	11463.99	31.4	350	.43	1.83	24.79
Cal Yr 1979	16263.00	44.6	350	1.7	2.59	35.17

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.34	.45	2.5	.86	.51	22	11	13	46	3.5	2.2	.51
2	.35	.50	2.3	.86	4.1	19	12	12	61	7.1	2.0	.51
3	.36	.53	2.2	.86	26	17	12	12	78	9.2	2.0	.63
4	.36	.62	1.8	.86	34	15	12	12	80	17	1.8	.70
5	.36	.69	1.8	.78	8.6	14	14	10	60	66	1.8	.78
6	.36	.72	1.8	.78	4.9	13	15	9.7	50	85	1.8	.78
7	.36	.74	1.8	.95	3.6	12	16	12	41	72	1.8	1.1
8	.36	.71	1.8	.90	2.4	10	16	9.7	32	50	1.8	1.2
9	.35	.73	1.8	.86	2.1	8.9	16	9.2	26	30	1.8	.86
10	.35	.70	1.8	.86	2.1	8.4	14	9.2	23	21	1.7	.86
11	.34	.65	1.8	.86	41	7.9	12	16	19	17	1.5	.78
12	.32	.70	1.7	.86	82	7.4	12	27	16	13	1.4	.78
13	.32	.63	1.5	.78	93	6.9	12	34	14	11	1.4	.70
14	.32	.63	1.4	.78	17	6.6	12	32	12	9.2	1.2	.63
15	.30	.63	1.4	.78	13	6.1	12	30	9.7	7.6	1.2	.63
16	.29	.63	1.4	.78	9.4	5.6	12	27	8.1	6.6	1.1	.70
17	.28	.70	1.3	.70	8.2	5.4	13	24	7.1	6.2	1.1	.70
18	.29	.86	1.3	.70	7.5	5.4	14	23	6.2	5.0	.95	.63
19	.30	.86	1.2	.95	8.3	5.3	14	53	5.4	4.1	.86	.63
20	.28	.78	1.2	.70	25	5.0	16	187	5.8	4.1	.86	.63
21	.28	.78	1.2	.63	44	4.7	16	137	5.4	3.5	.78	.63
22	.28	.78	1.2	.63	43	4.6	17	82	5.8	3.0	.78	.63
23	.28	.86	1.1	.63	45	4.4	18	55	5.8	2.5	.70	.63
24	.30	1.4	1.1	.63	65	4.3	19	39	4.1	2.8	.63	.63
25	.44	1.7	1.1	.57	54	4.1	19	27	3.8	3.5	.57	.63
26	.43	2.2	1.1	.57	41	4.1	16	21	3.8	5.0	.57	.57
27	.45	2.3	1.1	.57	32	4.2	15	17	3.5	3.5	.51	.51
28	.50	2.5	.95	.57	26	4.4	13	26	3.2	3.2	.51	.51
29	.51	2.8	.95	.57	---	4.6	12	38	2.3	3.8	.51	.45
30	.51	2.5	.95	.57	---	5.8	12	43	2.2	3.0	.51	.45
31	.49	---	.95	.51	---	8.4	---	47	---	2.5	.51	---
TOTAL	11.05	31.28	45.50	22.91	742.71	254.5	424	1093.8	640.2	480.9	36.85	20.38
MEAN	.36	1.04	1.47	.74	26.5	8.21	14.1	35.3	21.3	15.5	1.19	.68
MAX	.51	2.8	2.5	.95	93	22	19	187	80	85	2.2	1.2
MIN	.28	.45	.95	.51	.51	4.1	11	9.2	2.2	2.5	.51	.45
CFSM	.02	.06	.09	.04	1.54	.48	.82	2.05	1.24	.90	.07	.04
IN.	.02	.07	.10	.05	1.61	.55	.92	2.37	1.38	1.04	.08	.04

CAL YR 1980 TOTAL 7454.09 MEAN 20.4 MAX 310 MIN .28 CFSM 1.19 IN 16.12
WTR YR 1981 TOTAL 3804.08 MEAN 10.4 MAX 187 MIN .28 CFSM .61 IN 8.23

01622000 NORTH RIVER NEAR BURKETOWN, VA

LOCATION.--Lat 38°20'25", long 78°54'50", Rockingham County, Hydrologic Unit 02070005, on right bank 0.8 mi (1.3 km) downstream from Pleasant Run, 2.8 mi (4.5 km) northeast of Burketown, and 8.5 mi (13.7 km) upstream from Middle River.

DRAINAGE AREA.--379 mi^2 (982 km^2).

PERIOD OF RECORD.--October 1925 to October 1972, May 1975 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1171: 1936(M). WSP 1302: 1928-29(M), 1932-34(M), 1937-38(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,103.49 ft (336.344 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 12, 1938, nonrecording gage at site 3.0 mi (4.8 km) downstream at different datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--53 years, 366 ft^3/s (10.37 m^3/s), 13.11 in/yr (333 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,600 ft^3/s (1,770 m^3/s) June 18, 1949, gage height, 36.3 ft (11.06 m), from floodmarks, from rating curve extended above 16,000 ft^3/s (450 m^3/s) on basis of slope-area measurements at gage heights 32.4 ft (9.88 m) and 36.3 ft (11.06 m), and contracted-opening measurement at gage height 36.3 ft (11.06 m); minimum, 16 ft^3/s (0.45 m^3/s) Nov. 23, 1965, result of temporary dam upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1852, that of June 18, 1949.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,500 ft^3/s (71 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 3	1900	3110	88.1	7.16	2.182	July 5	1930	*3280	92.9	7.37	2.246

Minimum discharge, 45 ft^3/s (1.27 m^3/s) Aug. 29, gage height, 1.83 ft (0.558 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	66	85	74	58	284	90	122	575	124	96	90
2	68	66	83	72	117	255	87	114	702	194	92	83
3	68	70	83	68	85	227	85	109	1100	162	96	127
4	68	66	78	68	74	207	80	109	1040	547	94	127
5	70	68	78	66	66	194	90	104	925	1670	87	133
6	70	64	78	66	68	178	96	106	770	1930	106	101
7	66	64	78	68	63	168	90	114	720	1340	124	111
8	66	62	78	74	60	153	99	106	620	925	106	101
9	66	66	76	68	62	147	104	104	508	645	87	85
10	66	70	78	64	66	139	104	104	473	513	85	78
11	64	60	76	58	551	136	101	119	425	378	80	74
12	68	60	74	57	172	127	104	139	378	306	92	70
13	68	60	72	58	136	124	122	178	336	273	78	68
14	64	62	72	57	124	117	111	268	917	234	72	68
15	64	62	72	59	122	114	114	277	521	204	72	64
16	64	64	70	60	117	114	109	266	393	194	70	87
17	64	70	72	60	114	114	109	244	306	181	68	74
18	68	127	70	58	119	114	106	238	244	168	66	68
19	74	76	70	58	122	114	106	354	210	159	66	64
20	72	70	66	58	178	109	117	1070	348	153	64	64
21	68	70	66	66	223	106	114	1280	217	147	62	64
22	66	66	68	66	445	104	117	952	207	136	60	58
23	66	66	70	62	490	104	119	695	172	127	58	58
24	66	118	74	58	620	104	127	508	153	150	60	58
25	90	124	68	60	645	101	122	393	142	159	56	58
26	85	94	65	62	512	99	119	313	130	124	56	54
27	76	90	72	62	397	96	119	266	122	119	54	58
28	68	99	72	62	324	92	117	324	114	136	51	58
29	68	87	76	64	---	92	114	461	114	124	53	54
30	68	85	76	60	---	96	114	598	109	109	54	56
31	68	---	74	56	---	94	---	620	---	101	58	---
TOTAL	2135	2272	2290	1949	6130	4223	3206	10635	12991	11732	2323	2313
MEAN	68.9	75.7	73.9	62.9	219	136	107	343	433	378	74.9	77.1
MAX	90	127	85	74	645	284	127	1280	1100	1930	124	133
MIN	64	60	65	56	58	92	80	104	109	101	51	54
CFSM	.18	.20	.20	.17	.58	.36	.28	.91	1.14	1.00	.20	.20
IN.	.21	.22	.22	.19	.60	.41	.31	1.04	1.28	1.15	.23	.23

CAL YR 1980 TOTAL 142007 MEAN 388 MAX 4080 MIN 60 CFSM 1.02 IN 13.94
WTR YR 1981 TOTAL 62199 MEAN 170 MAX 1930 MIN 51 CFSM .45 IN 6.11

01624300 MIDDLE RIVER NEAR VERONA, VA

LOCATION.--Lat 38°14'36", long 79°02'08", Augusta County, Hydrologic Unit 02070005, on right bank at downstream side of bridge on State Highway 742, 2.7 mi (4.3 km) downstream from Moffett Creek, and 3.2 mi (5.1 km) northwest of Verona.

DRAINAGE AREA.--178 mi^2 (461 km^2).

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,260.78 ft (384.286 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by mill above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--14 years, 179 ft^3/s (5.069 m^3/s), 13.66 in/yr (347 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,650 ft^3/s (245 m^3/s) Sept. 6, 1979, gage height, 14.17 ft (4.319 m), from rating curve extended above 6,500 ft^3/s (180 m^3/s); minimum discharge, 3.7 ft^3/s (0.10 m^3/s) Jan. 30, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,130 ft^3/s (32.0 m^3/s) Feb. 11, gage height, 4.67 ft (1.423 m), no peak above base of 1,400 ft^3/s (40 m^3/s); minimum, 20 ft^3/s (0.57 m^3/s) Jan. 12, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	47	54	43	36	85	49	58	87	43	39	60
2	49	45	52	42	63	78	49	58	171	54	37	43
3	49	47	53	41	79	75	48	54	242	63	38	42
4	48	46	50	40	49	69	49	54	344	137	34	44
5	48	48	49	36	45	70	53	52	304	236	32	76
6	49	47	49	34	45	69	56	51	224	285	36	71
7	49	45	50	36	42	65	55	51	177	301	40	96
8	47	45	49	38	39	63	56	52	132	198	46	77
9	47	46	46	36	40	59	61	48	106	129	38	57
10	47	48	48	35	44	58	51	48	106	98	33	48
11	48	45	47	34	669	55	56	50	95	87	34	46
12	45	46	45	33	267	54	57	49	77	72	34	43
13	47	44	45	34	155	53	54	51	67	64	32	40
14	46	45	45	34	116	50	55	54	61	57	31	39
15	45	46	45	35	95	51	53	56	56	54	32	37
16	46	47	44	35	85	49	51	58	49	51	30	42
17	45	50	45	36	78	49	53	54	48	50	31	39
18	46	71	43	37	75	50	52	59	45	46	28	38
19	46	62	44	36	74	51	52	160	44	43	30	36
20	46	51	42	39	104	50	53	255	49	43	28	36
21	45	50	42	40	135	48	54	309	48	40	28	34
22	45	48	41	39	125	48	54	197	45	39	28	34
23	46	47	43	39	116	49	53	135	42	37	29	32
24	45	61	43	39	142	47	55	98	39	40	28	32
25	52	71	43	38	142	46	55	82	38	42	28	32
26	54	60	40	39	119	46	56	70	37	40	27	32
27	48	57	42	40	103	45	56	64	37	38	27	31
28	48	59	43	39	93	44	55	75	35	38	27	32
29	48	57	42	38	---	45	54	101	34	39	28	29
30	46	54	43	37	---	46	54	105	33	38	27	30
31	46	---	42	37	---	49	---	94	---	36	31	---
TOTAL	1465	1535	1409	1159	3175	1716	1609	2702	2872	2538	991	1328
MEAN	47.3	51.2	45.5	37.4	113	55.4	53.6	87.2	95.7	81.9	32.0	44.3
MAX	54	71	54	43	669	85	61	309	344	301	46	96
MIN	45	44	40	33	36	44	48	48	33	36	27	29
CFSM	.27	.29	.26	.21	.64	.31	.30	.49	.54	.46	.18	.25
IN.	.31	.32	.29	.24	.66	.36	.34	.56	.60	.53	.21	.28

CAL YR 1980 TOTAL 64783 MEAN 177 MAX 1580 MIN 40 CFSM .99 IN 13.54
WTR YR 1981 TOTAL 22499 MEAN 61.6 MAX 669 MIN 27 CFSM .35 IN 4.70

01624800 CHRISTIANS CREEK NEAR FISHERSVILLE, VA

LOCATION.--Lat 38°07'42", long 78°59'41", Augusta County, Hydrologic Unit 02070005, on right bank at upstream side of bridge on State Highway 794, 2.2 mi (3.5 km) northwest of Fishersville, and 5.6 mi (9.0 km) upstream from mouth.

DRAINAGE AREA.--70.1 mi^2 (181.6 km^2).

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,230 ft (375 m), from topographic map.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--14 years, 68.9 ft^3/s(1.951 m^3/s), 13.35 in/yr (339 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,850 ft^3/s (109 m^3/s) Oct. 5, 1972, gage height, 12.91 ft (3.935 m), from rating curve extended above 2,400 ft^3/s (68 m^3/s); minimum, 3.8 ft^3/s (0.11 m^3/s) Jan. 11, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 618 ft^3/s (17.5 m^3/s) Sept. 6, gage height, 4.25 ft (1.295 m), no peak above base of 1,000 ft^3/s (28 m^3/s); minimum, 5.2 ft^3/s (0.15 m^3/s) Jan. 31, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	23	23	18	14	26	19	17	20	16	16	19
2	21	22	23	18	64	25	18	14	35	42	15	17
3	22	23	23	17	28	23	17	13	26	42	16	15
4	22	26	22	13	19	23	16	13	79	49	15	22
5	21	28	22	12	17	28	19	13	40	62	15	25
6	23	25	21	13	15	26	19	14	29	105	28	128
7	21	23	20	14	14	23	17	16	27	65	52	71
8	20	23	20	16	13	22	16	14	25	40	42	26
9	20	23	20	14	13	22	16	13	23	28	19	21
10	20	23	21	13	15	21	17	13	26	26	17	17
11	20	22	20	12	234	20	16	15	22	31	16	16
12	19	22	19	12	56	20	16	15	20	24	16	15
13	20	22	19	12	38	19	18	13	19	23	15	14
14	20	22	19	13	28	19	17	13	19	22	15	14
15	20	23	19	13	26	18	16	15	19	20	14	15
16	20	24	19	14	25	19	15	14	18	20	14	23
17	20	31	19	15	25	18	16	13	18	20	14	19
18	22	58	18	17	25	19	17	13	17	19	13	16
19	27	30	18	16	28	19	15	25	17	19	13	15
20	23	25	16	16	81	18	17	26	19	19	13	15
21	22	23	15	17	55	18	16	19	18	19	13	14
22	22	22	17	17	44	18	15	18	17	18	13	14
23	22	21	18	16	43	19	16	16	16	18	12	13
24	22	32	19	16	43	18	16	16	16	19	12	13
25	34	39	16	16	35	18	15	16	15	22	12	13
26	30	26	15	16	31	17	14	16	16	19	12	13
27	25	27	16	17	28	17	15	16	15	20	12	13
28	25	34	17	16	27	17	14	23	15	19	11	12
29	24	27	18	16	---	16	14	25	15	23	11	12
30	23	24	19	15	---	20	15	19	14	17	12	13
31	23	---	18	12	---	22	---	21	---	16	12	---
TOTAL	695	793	589	462	1084	628	487	507	675	902	510	653
MEAN	22.4	26.4	19.0	14.9	38.7	20.3	16.2	16.4	22.5	29.1	16.5	21.8
MAX	34	58	23	18	234	28	19	26	79	105	52	128
MIN	19	21	15	12	13	16	14	13	14	16	11	12
CFSM	.32	.38	.27	.21	.55	.29	.23	.23	.32	.42	.24	.31
IN.	.37	.42	.31	.25	.58	.33	.26	.27	.36	.48	.27	.35

CAL YR 1980 TOTAL 23863 MEAN 65.2 MAX 661 MIN 15 CFSM .93 IN 12.66
WTR YR 1981 TOTAL 7985 MEAN 21.9 MAX 234 MIN 11 CFSM .31 IN 4.24

01625000 MIDDLE RIVER NEAR GROTTOES, VA

LOCATION.--Lat 38°15'42", long 78°51'44", Augusta County, Hydrologic Unit 02070005, on left bank at upstream side of bridge on State Highway 769 at Mount Meridian, 1.8 mi (2.9 km) upstream from mouth, and 2.0 mi (3.2 km) west of Grottoes.

DRAINAGE AREA.--375 mi^2 (971 km^2).

PERIOD OF RECORD.--April 1927 to current year. Records for February 1925 to September 1926, published in WSP 601 and 621, are unreliable and should not be used.

REVISED RECORDS.--WSP 1051: 1928-29, 1930(M), 1932, 1935-37, 1938(M), 1940. WSP 1171: 1933. WSP 1302: 1928-29(M), 1931-34(M). WSP 2103: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,061.51 ft (323.548 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, Dec. 19 to Feb. 17 and Aug. 18 to Sept. 30, which are fair. Small diurnal fluctuation at low flow caused by mills above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 307 ft^3/s (8.694 m^3/s), 11.12 in/yr (282 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft^3/s (694 m^3/s) Mar. 18, 1936, gage height, 28.57 ft (8.708 m), from floodmarks, from rating curve extended above 15,000 ft^3/s (420 m^3/s); minimum, 19 ft^3/s (0.54 m^3/s) Jan. 12, 1981, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1877, that of Mar. 18, 1936.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 707 ft^3/s (20.0 m^3/s) May 20, gage height, 5.79 ft (1.765 m), no peak above base of 3,000 ft^3/s (85 m^3/s); minimum, 19 ft^3/s (0.54 m^3/s) Jan. 12, gage height, 3.10 ft (0.945 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	86	95	75	58	151	97	125	140	76	70	54
2	92	87	95	72	90	141	94	103	221	141	69	64
3	93	82	95	68	105	134	90	96	289	157	92	71
4	93	88	92	66	89	130	88	92	387	191	87	79
5	88	94	87	55	74	130	91	91	449	254	72	88
6	91	91	87	61	80	136	101	91	330	423	69	82
7	93	88	86	62	76	126	99	97	265	434	99	120
8	89	86	84	67	79	119	96	92	211	339	128	105
9	87	85	86	67	69	116	97	89	171	235	110	92
10	84	90	83	62	80	112	100	86	165	195	84	80
11	84	89	83	59	270	110	98	94	165	215	73	73
12	83	83	80	55	250	105	99	101	139	153	73	69
13	80	82	78	73	210	103	110	90	121	128	74	67
14	82	82	78	73	185	101	100	87	111	117	67	65
15	82	83	77	73	165	96	100	94	103	105	64	64
16	80	88	78	69	150	98	94	103	96	101	63	76
17	82	94	77	67	140	96	92	95	87	99	61	90
18	84	172	77	69	139	96	95	93	83	94	60	82
19	91	140	75	73	139	99	92	130	79	88	59	72
20	92	109	74	73	245	98	94	440	83	83	58	66
21	86	94	68	74	263	95	98	535	89	84	57	63
22	84	89	68	72	230	93	94	309	87	79	56	62
23	83	86	75	69	210	93	93	213	80	73	55	59
24	83	94	77	66	208	95	95	164	74	74	54	58
25	99	144	77	66	220	91	96	139	68	92	53	57
26	121	121	75	68	201	89	94	121	67	87	51	56
27	103	107	72	68	176	89	96	110	64	79	50	55
28	93	118	73	66	160	86	94	125	62	84	50	54
29	90	112	76	65	---	84	91	145	61	97	49	53
30	89	102	74	64	---	88	97	151	60	86	49	53
31	86	---	72	58	---	101	---	149	---	74	51	---
TOTAL	2759	2966	2474	2075	4361	3301	2875	4450	4407	4537	2107	2129
MEAN	89.0	98.9	79.8	66.9	156	106	95.8	144	147	146	68.0	71.0
MAX	121	172	95	75	270	151	110	535	449	434	128	120
MIN	80	82	68	55	58	84	88	86	60	73	49	53
CFSM	.24	.26	.21	.18	.42	.28	.26	.38	.39	.39	.18	.19
IN.	.27	.29	.25	.21	.43	.33	.29	.44	.44	.45	.21	.21

CAL YR 1980 TOTAL 123388 MEAN 337 MAX 2920 MIN 68 CFSM .90 IN 12.24
WTR YR 1981 TOTAL 38441 MEAN 105 MAX 535 MIN 49 CFSM .28 IN 3.81

01626000 SOUTH RIVER NEAR WAYNESBORO, VA

LOCATION.--Lat 38°03'27", long 78°54'30", Waynesboro City, Hydrologic Unit 02070005, on right bank 80 ft (20 m) downstream from bridge on State Highway 664, 1.3 mi (2.1 km) southwest of post office at Waynesboro, and 2.4 mi (3.9 km) downstream from Back Creek.

DRAINAGE AREA.--127 mi^2 (329 km^2), of which 41 mi^2 (106 km^2) are above flood-detention structures.

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,296.20 ft (395.082 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow from 41 mi^2 (106 km^2) above station slightly regulated by flood-detention reservoirs (sixteen of which were built by Soil Conservation Service between 1954 and 1961). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--29 years, 137 ft^3/s (3.880 m^3/s), 14.65 in/yr (372 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 ft^3/s (493 m^3/s) Aug. 20, 1969, gage height, 15.27 ft (4.654 m), from rating curve extended above 4,200 ft^3/s (120 m^3/s) on basis of contracted-opening measurement at gage height 13.95 ft (4.252 m); minimum, 7.0 ft^3/s (0.20 m^3/s) July 18, 1966; minimum daily, 17 ft^3/s (0.48 m^3/s) Aug. 8, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 14.3 ft (4.36 m), from floodmarks, discharge, 14,500 ft^3/s (411 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 419 ft^3/s (11.9 m^3/s) Feb. 11, gage height, 3.87 ft (1.180 m), no peak above base of 1,000 ft^3/s (28 m^3/s); minimum, 25 ft^3/s (0.71 m^3/s) Aug. 25, gage height, 2.32 ft (0.707 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	33	43	34	29	81	48	39	68	30	31	30
2	34	34	41	33	73	74	47	37	122	46	30	30
3	34	33	41	32	70	67	45	35	131	60	30	32
4	35	34	39	31	47	62	43	34	156	89	30	40
5	33	35	38	29	40	67	47	34	130	124	29	47
6	33	34	37	31	39	64	50	34	110	108	33	39
7	33	33	37	33	36	58	45	41	100	165	41	96
8	32	33	36	32	37	54	45	37	81	111	67	80
9	33	33	36	31	32	52	45	34	69	81	51	52
10	32	31	37	32	35	51	45	35	66	68	40	41
11	32	30	36	32	312	50	43	44	59	92	36	37
12	32	30	36	29	228	48	44	45	48	73	35	34
13	32	30	36	30	132	48	48	41	46	62	33	33
14	31	32	35	31	97	46	46	39	44	55	32	32
15	32	32	35	31	78	44	45	43	42	50	32	33
16	31	34	35	31	67	45	42	44	39	46	31	43
17	31	35	35	31	62	44	43	40	36	45	31	55
18	34	44	34	30	57	43	46	40	35	42	30	45
19	35	44	34	31	58	43	43	54	34	39	30	39
20	35	39	34	32	230	43	45	82	42	38	30	35
21	33	38	33	32	203	41	45	81	37	38	29	33
22	33	38	33	32	158	39	43	73	36	35	29	31
23	32	37	34	32	151	41	44	64	33	34	29	31
24	32	46	35	31	169	40	45	57	30	34	28	30
25	45	64	34	31	147	39	43	52	30	37	28	30
26	40	47	33	31	122	38	41	47	30	36	27	30
27	36	46	33	31	102	37	39	45	28	36	27	30
28	36	58	35	31	90	36	39	84	28	35	27	30
29	36	54	34	30	---	36	37	85	28	38	27	29
30	35	47	35	30	---	39	39	72	28	33	27	30
31	33	---	34	29	---	50	---	69	---	32	27	---
TOTAL	1050	1158	1108	966	2901	1520	1320	1561	1766	1812	1007	1177
MEAN	33.9	38.6	35.7	31.2	104	49.0	44.0	50.4	58.9	58.5	32.5	39.2
MAX	45	64	43	34	312	81	50	85	156	165	67	96
MIN	31	30	33	29	29	36	37	34	28	30	27	29
CFSM	.27	.30	.28	.25	.82	.39	.35	.40	.46	.46	.26	.31
IN.	.31	.34	.32	.28	.85	.45	.39	.46	.52	.53	.29	.34

CAL YR 1980 TOTAL 48677 MEAN 133 MAX 1570 MIN 30 CFSM 1.05 IN 14.26
WTR YR 1981 TOTAL 17346 MEAN 47.5 MAX 312 MIN 27 CFSM .37 IN 5.08

01626850 SOUTH RIVER NEAR DOOMS, VA

LOCATION.--Lat 38°05'19", long 78°52'38", Augusta County, Hydrologic Unit 02070005, on left bank at downstream side of Hopeman Parkway Road bridge, 1.1 mi (1.8 km) downstream from Steele Run, and 1.6 mi (2.6 km) southwest of Dooms.

DRAINAGE AREA.--149 mi^2 (386 km^2).

PERIOD OF RECORD.--April 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,247.04 ft (380.098 m) National Geodetic Vertical Datum of 1929 (Norfolk and Western Railway bench mark). Prior to Sept. 18, 1980, nonrecording gage at site 30 ft (10 m) upstream at same datum.

REMARKS.--Records good except those for periods of no gage-height record, Nov. 19 to Jan. 31 and Apr. 22 to May 26, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--7 years, 199 ft^3/s (5.636 m^3/s), 18.14 in/yr (461 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 8,000 ft^3/s (227 m^3/s) Mar. 19, 1975, gage height, 12.02 ft (3.664 m); minimum, 42 ft^3/s (1.19 m^3/s) Aug. 29, 30, 1981, gage height, 2.17 ft (0.661 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 630 ft^3/s (17.8 m^3/s) Feb. 11, gage height, 4.00 ft (1.219 m), no peak above base of 1,000 ft^3/s (28 m^3/s); minimum, 42 ft^3/s (1.19 m^3/s) Aug. 29, 30, gage height, 2.17 ft (0.661 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	56	64	53	62	117	74	71	115	60	52	48
2	58	58	62	54	123	109	74	69	175	82	51	47
3	60	58	60	52	118	101	73	66	187	98	53	54
4	58	66	59	53	99	96	72	65	211	124	51	76
5	58	60	58	54	79	102	76	64	181	150	50	70
6	58	60	57	54	76	97	78	64	157	139	78	66
7	55	60	56	55	72	90	73	70	146	181	103	114
8	56	60	56	56	74	85	72	66	123	135	102	117
9	56	62	55	54	68	82	72	62	109	104	79	81
10	54	60	55	52	81	80	72	64	112	117	67	67
11	54	58	55	50	474	79	72	78	94	123	73	61
12	54	58	54	49	351	78	74	80	81	102	62	59
13	56	60	54	49	281	77	76	78	79	89	57	56
14	56	60	54	49	135	77	75	73	81	81	56	55
15	56	62	54	51	112	73	73	76	66	73	55	62
16	56	62	53	50	101	74	71	80	70	70	54	105
17	56	79	53	50	95	73	71	79	66	69	53	132
18	64	72	53	49	90	71	76	79	62	64	51	85
19	60	68	53	49	110	71	73	100	62	63	51	72
20	58	62	52	51	356	70	77	150	68	62	49	65
21	56	58	51	52	276	69	74	148	68	59	49	61
22	56	56	52	53	207	66	72	140	66	58	48	58
23	56	63	53	53	200	68	76	125	60	55	48	55
24	56	72	54	51	217	68	78	105	56	57	49	54
25	108	80	54	49	189	66	77	93	55	57	47	53
26	64	70	53	48	162	65	75	90	51	59	47	53
27	60	64	52	49	140	64	72	87	50	60	46	52
28	58	76	53	50	128	63	71	152	48	77	45	52
29	58	74	54	50	---	63	67	140	47	62	44	51
30	58	70	54	49	---	68	70	126	48	57	44	50
31	58	---	53	48	---	77	---	115	---	55	46	---
TOTAL	1832	1924	1700	1585	4476	2439	2206	2855	2794	2642	1760	2031
MEAN	59.1	64.1	54.8	51.1	160	78.7	73.5	92.1	93.1	85.2	56.8	67.7
MAX	108	80	64	56	474	117	78	152	211	181	103	132
MIN	54	56	51	48	62	63	67	62	47	55	44	47
CFSM	.40	.43	.37	.34	1.07	.53	.49	.62	.63	.57	.38	.45
IN.	.46	.48	.42	.40	1.12	.61	.55	.71	.70	.66	.44	.51

CAL YR 1980 TOTAL 65690 MEAN 179 MAX 2330 MIN 51 CFSM 1.20 IN 16.40
WTR YR 1981 TOTAL 28244 MEAN 77.4 MAX 474 MIN 44 CFSM .52 IN 7.05

01627500 SOUTH RIVER AT HARRISTON, VA

LOCATION.--Lat 38°13'07", long 78°50'13", Augusta County, Hydrologic Unit 02070005, on left bank 100 ft (30 m) downstream from bridge on State Highway 778, 0.3 mi (0.5 km) northwest of Harriston, 0.6 mi (1.0 km) downstream from Paine Run, and 7.2 mi (11.6 km) upstream from confluence with North River.

DRAINAGE AREA.--212 mi^2 (549 km^2).

PERIOD OF RECORD.--February 1925 to September 1951, October 1968 to current year.

REVISED RECORDS.--WSP 1171: 1926(M), 1927-28, 1929-32(M), 1933, 1934(M), 1935, 1937. WSP 1302: 1937(M), 1938(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,129.87 ft (344.384 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--39 years, 252 ft^3/s (7.137 m^3/s), 16.14 in/yr (410 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,100 ft^3/s (654 m^3/s) Oct. 15, 1942, gage height, 17.2 ft (5.24 m), from rating curve extended above 10,000 ft^3/s (280 m^3/s); minimum, 17 ft^3/s (0.48 m^3/s) Nov. 14, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in 1870 and 1877 reached a stage of about 18.8 ft (5.73 m), from information by observer in 1925.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 694 ft^3/s (19.7 m^3/s) Feb. 11, gage height, 4.28 ft (1.305 m), no peak above base of 1,200 ft^3/s (34 m^3/s); minimum daily, 55 ft^3/s (1.56 m^3/s) Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	71	87	69	59	153	98	100	147	74	66	58
2	69	70	84	70	101	141	98	88	194	103	64	58
3	68	71	82	69	136	130	93	85	224	128	65	65
4	71	79	80	67	94	122	90	85	250	178	68	86
5	68	75	79	66	84	128	95	85	238	193	63	92
6	70	73	78	66	79	129	98	85	199	191	93	79
7	68	72	78	67	77	117	93	93	184	213	77	108
8	66	71	77	68	77	113	88	90	155	194	160	162
9	67	72	77	66	72	108	87	85	135	146	113	114
10	67	74	77	65	70	105	90	85	135	138	88	89
11	66	70	76	66	451	103	88	100	116	186	79	79
12	65	69	74	64	420	100	90	102	98	148	91	74
13	65	69	74	62	227	98	100	96	90	125	72	71
14	66	70	74	64	176	97	96	93	91	112	70	69
15	66	71	73	64	147	93	96	98	87	100	68	75
16	66	74	73	63	128	93	93	107	83	94	66	115
17	66	77	73	63	119	94	92	100	77	91	65	187
18	68	112	72	62	112	92	95	100	73	86	64	128
19	85	87	72	65	111	90	93	133	70	81	64	102
20	71	80	71	66	462	90	100	163	75	81	62	88
21	69	77	69	67	456	90	100	182	80	78	60	81
22	68	75	69	67	323	87	96	170	75	75	59	76
23	68	73	71	66	276	90	95	152	70	71	58	71
24	68	87	72	64	310	90	98	137	66	73	58	68
25	130	106	72	63	269	88	93	125	64	75	58	67
26	89	95	72	64	220	87	90	113	62	71	57	66
27	78	89	70	63	190	85	88	106	60	74	57	65
28	74	109	70	63	169	84	87	170	58	75	56	65
29	73	102	71	62	---	82	85	182	56	101	55	64
30	72	93	73	61	---	88	88	158	56	73	55	64
31	71	---	71	61	---	95	---	158	---	69	56	---
TOTAL	2228	2413	2311	2013	5415	3162	2793	3626	3368	3497	2187	2586
MEAN	71.9	80.4	74.5	64.9	193	102	93.1	117	112	113	70.5	86.2
MAX	130	112	87	70	462	153	100	182	250	213	160	187
MIN	65	69	69	61	59	82	85	85	56	69	55	58
CFSM	.34	.38	.35	.31	.91	.48	.44	.55	.53	.53	.33	.41
IN.	.39	.42	.41	.35	.95	.55	.49	.64	.59	.61	.38	.45

CAL YR 1980 TOTAL 89535 MEAN 245 MAX 3130 MIN 65 CFSM 1.16 IN 15.71
WTR YR 1981 TOTAL 35599 MEAN 97.5 MAX 462 MIN 55 CFSM .46 IN 6.25

01628060 WHITE OAK RUN NEAR GROTTOES, VA

LOCATION.--Lat 38°15'01", long 78°44'57", Rockingham County, Hydrologic Unit 02070005, Shenandoah National Park, on left bank 700 ft (213 m) upstream from Madison Run, 0.2 mi (0.3 km) south of Madison Run Forest Trail, 1.4 mi (2.3 km) upstream from southwest boundary of Shenandoah National Park, and 4.3 mi (6.9 km) southeast of Grottoes.

DRAINAGE AREA.--1.94 mi² (5.02 km²).

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,480 ft (451 m), from topographic map.

REMARKS.--Records fair except those for October to January, August, and September, which are poor. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 150 ft³/s (4.25 m³/s) Nov. 26, 1979, gage height, 2.59 ft (0.789 m); no flow many days in 1980 and 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16 ft³/s (0.45 m³/s) Feb. 20, gage height, 1.77 ft (0.539 m), no peak above base of 30 ft³/s (0.85 m³/s); no flow many days during October to February, August, and September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.26	.00	.00	1.5	.26	.63	2.7	.25	.07	.00
2	.00	.00	.18	.00	.29	1.2	.28	.59	3.0	2.4	.06	.00
3	.00	.00	.14	.00	1.3	.97	.28	.55	3.3	3.9	.06	.00
4	.00	.00	.11	.00	.90	.79	.30	.55	3.5	5.7	.10	.00
5	.00	.00	.10	.00	.41	.75	.37	.55	3.1	5.0	.08	.01
6	.00	.00	.08	.00	.28	.72	.48	.57	2.7	3.8	.07	.01
7	.00	.00	.06	.00	.14	.59	.51	.63	2.2	3.1	.07	.06
8	.00	.00	.06	.00	.12	.47	.57	.53	1.6	2.3	.08	.04
9	.00	.00	.05	.00	.12	.41	.70	.47	1.2	1.6	.07	.02
10	.00	.00	.05	.00	.10	.39	.73	.46	1.1	1.1	.05	.01
11	.00	.00	.05	.00	4.0	.37	.65	.52	.84	.94	.04	.00
12	.00	.00	.04	.00	2.6	.37	.67	.65	.64	.63	.04	.00
13	.00	.00	.02	.00	1.2	.37	.82	.77	.52	.50	.03	.00
14	.00	.00	.02	.00	.71	.37	.80	.96	.44	.43	.03	.00
15	.00	.00	.01	.00	.50	.35	.90	1.1	.39	.35	.03	.01
16	.00	.00	.00	.00	.41	.34	.90	1.0	.33	.31	.02	.05
17	.00	.01	.00	.00	.33	.40	1.0	.89	.30	.30	.01	.02
18	.00	.07	.00	.00	.31	.50	1.0	.83	.27	.24	.01	.01
19	.00	.18	.00	.00	.43	.50	.94	1.9	.23	.17	.01	.00
20	.00	.12	.00	.00	13	.43	.93	5.7	.24	.16	.00	.00
21	.00	.08	.00	.00	7.8	.30	.87	6.5	.28	.16	.00	.00
22	.00	.05	.00	.03	5.3	.27	.78	4.9	.19	.15	.00	.00
23	.00	.03	.00	.06	4.4	.23	.78	3.4	.14	.12	.00	.00
24	.00	.03	.00	.06	5.4	.20	.81	2.4	.12	.12	.00	.00
25	.00	.20	.00	.05	4.8	.20	.73	1.7	.10	.19	.00	.00
26	.09	.26	.00	.02	3.4	.20	.62	1.2	.09	.15	.00	.00
27	.05	.16	.00	.00	2.4	.18	.55	.99	.08	.12	.00	.00
28	.01	.28	.00	.00	1.9	.18	.53	3.4	.07	.11	.00	.00
29	.00	.41	.00	.00	---	.18	.50	5.9	.06	.19	.00	.00
30	.00	.33	.00	.00	---	.19	.51	5.2	.05	.11	.00	.00
31	.00	---	.00	.00	---	.26	---	3.8	---	.09	.00	---
TOTAL	.15	2.21	1.23	.22	62.55	14.18	19.77	59.24	29.78	34.69	.93	.24
MEAN	.005	.074	.040	.007	2.23	.46	.66	1.91	.99	1.12	.030	.008
MAX	.09	.41	.26	.06	13	1.5	1.0	6.5	3.5	5.7	.10	.06
MIN	.00	.00	.00	.00	.00	.18	.26	.46	.05	.09	.00	.00
CFSM	.003	.04	.02	.004	1.15	.24	.34	.99	.51	.58	.02	.004
IN.	.00	.04	.02	.00	1.20	.27	.38	1.14	.57	.66	.02	.00

CAL YR 1980 TOTAL 687.58 MEAN 1.88 MAX 32 MIN .00 CFSM .97 IN 13.18
WTR YR 1981 TOTAL 225.19 MEAN .62 MAX 13 MIN .00 CFSM .32 IN 4.32

01628150 DEEP RUN NEAR GROTTOES, VA

LOCATION.--Lat 38°16'23", long 78°45'36", Rockingham County, Hydrologic Unit 02070005, Shenandoah National Park, on right bank, 0.2 mi (0.3 km) southeast of boundary of Shenandoah National Park, 0.5 mi (0.8 km) upstream from culvert on State Highway 708, and 3.7 mi (6.0 km) east of Grottoes.

DRAINAGE AREA.--1.17 mi² (3.03 km²).

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,480 ft (451 m), from topographic map.

REMARKS.--Records fair except those below 0.10 ft³/s (0.003 m³/s), which are poor. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43 ft³/s (1.22 m³/s) Apr. 30, 1980, gage height, 2.10 ft (0.640 m); minimum daily, 0.02 ft³/s (0.001 m³/s) Sept. 14-16, 1980, Aug. 29, Sept. 28-30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5.5 ft³/s (0.16 m³/s) June 3, gage height, 1.31 ft (0.399 m), no peak above base of 20 ft³/s (0.57 m³/s); minimum daily, 0.02 ft³/s (0.001 m³/s) Aug. 29, Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.03	.03	.09	.05	.09	.46	.12	.64	1.6	.34	.10	.03
2	.03	.03	.08	.04	.17	.38	.13	.60	2.5	1.4	.09	.03
3	.03	.03	.07	.04	.12	.32	.13	.60	5.3	1.5	.09	.05
4	.03	.05	.06	.04	.09	.27	.14	.60	4.0	2.4	.10	.06
5	.03	.04	.06	.04	.08	.27	.18	.56	2.7	2.2	.09	.04
6	.03	.03	.05	.04	.07	.27	.21	.55	2.2	2.3	.10	.04
7	.03	.03	.05	.05	.06	.23	.21	.53	1.7	2.1	.11	.04
8	.03	.03	.05	.05	.05	.20	.23	.44	1.3	1.5	.12	.04
9	.03	.04	.04	.05	.07	.19	.26	.38	1.1	1.1	.10	.05
10	.03	.04	.04	.04	.08	.17	.28	.37	1.0	.81	.09	.04
11	.03	.04	.04	.04	1.2	.17	.28	.40	.76	.66	.08	.04
12	.03	.04	.04	.04	1.5	.17	.35	.47	.59	.48	.07	.04
13	.03	.04	.04	.04	1.1	.17	.94	.45	.51	.41	.07	.04
14	.03	.03	.03	.04	.46	.17	1.0	.45	.47	.36	.06	.03
15	.03	.03	.04	.04	.31	.15	.99	.48	.39	.30	.06	.04
16	.03	.04	.04	.04	.22	.15	.85	.46	.33	.28	.06	.06
17	.03	.07	.04	.04	.20	.15	.82	.39	.29	.26	.05	.04
18	.05	.13	.04	.04	.19	.15	.77	.39	.24	.22	.05	.04
19	.06	.15	.04	.05	.21	.15	.66	1.2	.22	.18	.05	.03
20	.04	.12	.04	.05	3.6	.14	.63	3.1	.23	.16	.04	.03
21	.03	.09	.04	.06	2.1	.13	.54	2.8	.23	.15	.04	.03
22	.03	.07	.04	.08	1.4	.12	.49	2.0	.19	.14	.04	.03
23	.03	.07	.06	.09	1.2	.12	.49	1.5	.16	.13	.04	.03
24	.03	.10	.08	.08	1.3	.10	.51	1.2	.14	.14	.03	.03
25	.09	.13	.07	.07	1.1	.10	.45	.92	.12	.17	.03	.03
26	.04	.13	.06	.06	.85	.10	.39	.72	.10	.15	.03	.03
27	.03	.10	.06	.05	.63	.10	.36	.62	.10	.12	.03	.03
28	.03	.12	.07	.04	.51	.09	.35	1.2	.09	.16	.03	.02
29	.04	.13	.08	.04	---	.09	.33	2.4	.07	.22	.02	.02
30	.04	.12	.07	.04	---	.11	.41	2.3	.07	.16	.03	.02
31	.03	---	.06	.05	---	.12	---	1.9	---	.12	.03	---
TOTAL	1.08	2.10	1.67	1.52	18.96	5.51	13.50	30.62	28.69	20.62	1.93	1.08
MEAN	.035	.070	.054	.049	.68	.18	.45	.99	.96	.67	.062	.036
MAX	.09	.15	.09	.09	3.6	.46	1.0	3.1	5.3	2.4	.12	.06
MIN	.03	.03	.03	.04	.05	.09	.12	.37	.07	.12	.02	.02
CFSM	.03	.06	.05	.04	.58	.15	.39	.85	.82	.57	.05	.03
IN.	.03	.07	.05	.05	.60	.18	.43	.97	.91	.66	.06	.03

CAL YR 1980 TOTAL 413.66 MEAN 1.13 MAX 19 MIN .02 CFSM .97 IN 13.14
WTR YR 1981 TOTAL 127.28 MEAN .35 MAX 5.3 MIN .02 CFSM .30 IN 4.04

01628500 SOUTH FORK SHENANDOAH RIVER NEAR LYNNWOOD, VA

LOCATION.--Lat 38°19'21", long 78°45'18", Rockingham County, Hydrologic Unit 02070005, on left bank 1.2 mi (1.9 km) northeast of Lynnwood and 3.3 mi (5.3 km) downstream from confluence of North and South Rivers.

DRAINAGE AREA.--1,084 mi² (2,808 km²).

PERIOD OF RECORD.--September 1930 to current year.

REVISED RECORDS.--WSP 1171: 1933(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,013.17 ft (308.814 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation at low flow prior to 1960 caused by mill at Lynnwood. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--51 years, 988 ft³/s (27.98 m³/s), 12.38 in/yr (314 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,000 ft³/s (2,270 m³/s) Oct. 15, 1942, gage height, 27.2 ft (8.29 m), from rating curve extended above 22,000 ft³/s (620 m³/s) on basis of computations of flow over dam at gage heights 23.60 ft (7.193 m) and 27.2 ft (8.29 m); minimum, 32 ft³/s (0.91 m³/s) Sept. 20, 1932, gage height, 1.63 ft (0.497 m); minimum daily, 93 ft³/s (2.63 m³/s) Sept. 21, 29, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 15, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,010 ft³/s (142 m³/s) July 5, gage height, 7.59 ft (2.313 m), no peak above base of 7,000 ft³/s (200 m³/s); minimum, 163 ft³/s (4.62 m³/s) Feb. 1, gage height, 2.00 ft (0.610 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	236	278	236	184	579	314	364	889	296	264	194
2	240	236	271	229	267	522	307	332	1230	482	256	234
3	240	234	271	215	340	487	299	316	1560	475	275	261
4	245	245	267	210	285	459	292	311	2110	756	292	287
5	240	252	260	175	230	448	296	308	1820	2170	261	327
6	242	246	257	190	250	442	314	308	1440	3180	275	298
7	242	241	257	195	239	410	310	322	1290	2290	318	433
8	234	237	253	210	246	391	307	318	1090	1690	388	401
9	236	238	253	210	212	377	314	306	880	1120	333	331
10	253	242	253	195	232	367	318	303	804	809	284	279
11	240	242	250	185	1010	358	314	317	751	857	263	251
12	232	234	243	175	1700	349	318	357	631	589	268	237
13	229	239	243	210	723	340	340	337	554	492	264	230
14	227	236	239	230	573	337	329	386	1020	443	243	220
15	228	236	239	230	494	329	325	420	796	402	238	217
16	232	243	236	215	446	325	318	453	598	375	229	252
17	235	253	239	210	423	325	310	423	490	366	223	313
18	239	367	236	215	414	329	318	409	423	349	217	282
19	252	333	232	230	417	325	314	518	376	329	216	246
20	244	285	232	230	831	322	322	1360	421	320	212	229
21	235	260	215	232	987	314	325	2180	482	317	208	219
22	230	253	215	229	1020	314	320	1580	391	304	203	212
23	230	250	236	215	1040	310	322	1150	350	291	201	203
24	230	264	243	208	1150	310	332	864	324	290	199	197
25	279	367	246	208	1230	307	328	661	307	337	194	193
26	316	322	235	215	1020	303	323	536	297	310	187	192
27	266	292	225	212	798	299	323	472	284	291	185	187
28	251	314	230	208	655	292	321	523	276	296	182	185
29	243	307	239	205	---	288	316	695	269	340	181	181
30	242	292	236	201	---	296	321	874	264	293	182	179
31	239	---	229	184	---	314	---	938	---	272	183	---
TOTAL	7531	7996	7558	6512	17416	11168	9510	18641	22417	21131	7424	7470
MEAN	243	267	244	210	622	360	317	601	747	682	239	249
MAX	316	367	278	236	1700	579	340	2180	2110	3180	388	433
MIN	227	234	215	175	184	288	292	303	264	272	181	179
CFSM	.22	.25	.23	.19	.57	.33	.29	.55	.69	.63	.22	.23
IN.	.26	.27	.26	.22	.60	.38	.33	.64	.77	.73	.25	.26

CAL YR 1980 TOTAL 382815 MEAN 1046 MAX 9900 MIN 215 CFSM .97 IN 13.14
WTR YR 1981 TOTAL 144774 MEAN 397 MAX 3180 MIN 175 CFSM .37 IN 4.97

01629500 SOUTH FORK SHENANDOAH RIVER NEAR LURAY, VA

LOCATION.--Lat 38°38'46", long 78°32'06", Page County, Hydrologic Unit 02070005, on right bank between bridges on U.S. Highway 211, 1.2 mi (1.9 km) downstream from Big Run, 2.2 mi (3.5 km) upstream from Mill Creek, and 4.1 mi (6.6 km) west of Luray.

DRAINAGE AREA.--1,377 mi² (3,566 km²).

PERIOD OF RECORD.--April 1925 to September 1930, October 1938 to September 1951, June 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 721.76 ft (219.992 m) National Geodetic Vertical Datum of 1929. April 1925 to September 1930, nonrecording gage at same site and datum.

REMARKS.--Records good. Diurnal fluctuation at low and medium flow caused by powerplant 10 mi (16 km) above station. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--20 years, 1,266 ft³/s (35.85 m³/s), 12.49 in/yr (317 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft³/s (2,830 m³/s) Oct. 16, 1942, gage height, 25.7 ft (7.833 m); minimum, 70 ft³/s (1.98 m³/s) Sept. 27, 1941, gage height, 2.15 ft (0.655 m); minimum daily, 135 ft³/s (3.82 m³/s) Sept. 16, 1925, Sept. 28, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of 23.6 ft (7.19 m), from floodmarks, discharge, 81,600 ft³/s (2,310 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,470 ft³/s (155 m³/s) July 6, gage height, 6.93 ft (2.112 m), no peak above base of 8,000 ft³/s (230 m³/s); minimum, 185 ft³/s (5.24 m³/s) Jan. 13, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	398	379	477	240	285	964	424	518	1270	437	385	308
2	398	379	464	240	331	884	424	568	1360	820	385	308
3	404	373	444	230	457	844	398	525	1850	1110	398	355
4	392	385	411	230	540	828	392	491	3100	1270	444	430
5	392	392	418	220	450	796	385	470	3050	1890	477	457
6	385	398	398	210	349	772	392	464	2370	4040	411	504
7	385	392	398	210	379	725	404	470	1970	2710	404	464
8	385	392	404	210	367	671	404	464	1710	2060	498	641
9	355	392	398	200	367	590	411	464	1450	1530	576	612
10	367	385	404	200	361	540	411	450	1340	1200	518	477
11	379	392	398	190	504	561	418	464	1260	1400	457	398
12	373	385	392	190	2040	504	430	612	1070	998	437	385
13	361	373	373	190	1380	518	470	634	980	709	430	367
14	361	373	367	210	860	491	498	583	1140	641	430	337
15	343	367	373	230	756	477	504	641	1390	554	367	331
16	349	367	373	250	648	470	498	671	1080	511	314	361
17	355	385	373	270	641	470	491	686	868	437	349	373
18	361	477	373	296	576	450	477	656	756	418	343	457
19	392	612	367	308	590	457	470	717	678	392	331	424
20	398	554	361	331	1410	450	477	1130	656	385	319	367
21	392	418	361	325	1850	437	477	2310	788	349	325	355
22	373	418	343	331	1530	424	477	2110	764	349	319	343
23	379	373	325	325	1470	424	470	1660	678	337	314	325
24	367	437	310	319	1450	424	477	1360	547	349	314	319
25	411	504	290	302	1520	418	484	1120	525	430	325	279
26	511	605	270	291	1460	411	477	948	491	418	291	285
27	532	540	260	314	1250	404	491	788	464	392	296	291
28	424	491	260	314	1080	392	491	836	477	392	302	291
29	392	511	255	302	---	392	477	1020	424	464	296	285
30	392	511	255	296	---	392	470	1120	437	504	302	285
31	392	---	255	285	---	398	---	1230	---	418	302	---
TOTAL	12098	12960	11150	8059	24901	16978	13569	26180	34943	27914	11659	11414
MEAN	390	432	360	260	889	548	452	845	1165	900	376	380
MAX	532	612	477	331	2040	964	504	2310	3100	4040	576	641
MIN	343	367	255	190	285	392	385	450	424	337	291	279
CFSM	.28	.31	.26	.19	.65	.40	.33	.61	.85	.65	.27	.28
IN.	.33	.35	.30	.22	.67	.46	.37	.71	.94	.75	.31	.31

CAL YR 1980 TOTAL 499491 MEAN 1365 MAX 11500 MIN 255 CFSM .99 IN 13.49
WTR YR 1981 TOTAL 211825 MEAN 580 MAX 4040 MIN 190 CFSM .42 IN 5.72

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA

LOCATION.--Lat 38°54'50", long 78°12'40", Warren County, Hydrologic Unit 02070005, on left bank 0.7 mi (1.1 km) downstream from bridge on State Highway 619, 1.0 mi (1.6 km) west of Front Royal, and 3.5 mi (5.6 km) upstream from confluence with North Fork.

DRAINAGE AREA.--1,642 mi² (4,253 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1899 to September 1906, September 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1171: 1935(M), 1937(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 469.38 ft (143.067 m) National Geodetic Vertical Datum of 1929. June 1899 to July 1906, nonrecording gage at site 1.0 mi (1.6 km) upstream at different datum.

REMARKS.--Records good. Large diurnal fluctuation at low and medium flow caused by powerplants above station prior to 1954; occasional large diurnal fluctuation thereafter. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--58 years, 1,587 ft³/s (44.94 m³/s), 13.13 in/yr (334 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft³/s (3,680 m³/s) Oct. 16, 1942, gage height, 34.8 ft (10.61 m), from floodmark in gage well, from rating curve extended above 92,000 ft³/s (2,600 m³/s) on basis of slope-area measurement of peak flow; minimum, 59 ft³/s (1.67 m³/s) Jan. 30, 1934, gage height, 0.56 ft (0.171 m); minimum daily, 103 ft³/s (2.92 m³/s) Sept. 30, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,420 ft³/s (153 m³/s) July 6, gage height, 4.90 ft (1.494 m), no peak above base of 8,500 ft³/s (240 m³/s); minimum daily, 269 ft³/s (7.62 m³/s) Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	393	427	653	350	370	1280	461	550	1430	388	534	327
2	403	402	622	330	452	1190	494	628	1430	446	431	291
3	414	411	591	320	553	876	500	643	1490	1010	414	310
4	439	425	539	320	642	879	442	600	2530	1440	429	335
5	410	423	512	310	864	871	459	562	3540	1700	501	447
6	400	417	529	315	603	813	449	549	3110	3320	566	523
7	413	431	499	310	530	778	453	497	2690	4170	466	497
8	411	429	491	300	398	755	454	504	2100	2980	446	506
9	399	422	521	300	550	708	470	498	1810	2370	576	672
10	388	427	496	290	446	657	472	492	1790	1820	655	641
11	383	418	500	290	536	602	469	509	1530	1460	577	594
12	396	411	489	302	799	633	487	560	1330	1730	577	398
13	394	412	476	292	2400	548	536	775	1100	1240	511	408
14	387	403	470	300	1320	581	587	791	1110	844	474	393
15	387	410	439	294	902	548	586	700	1280	848	462	385
16	367	423	462	313	814	551	560	750	1470	740	417	493
17	368	436	444	300	722	543	550	745	1000	694	345	468
18	385	519	451	324	728	533	560	764	831	603	370	416
19	389	600	444	382	653	527	542	766	737	601	378	454
20	396	722	442	466	1120	528	544	900	714	571	337	497
21	417	676	419	454	2440	525	543	1560	670	607	330	430
22	427	487	372	432	2460	504	514	2690	816	475	319	382
23	394	516	370	419	2050	495	544	2200	793	501	306	347
24	379	597	360	421	1990	471	553	1740	638	491	304	340
25	552	681	360	369	1900	470	533	1420	586	541	314	328
26	526	706	357	416	1880	462	535	1110	488	643	308	320
27	578	779	445	394	1710	470	544	952	464	614	305	272
28	623	760	380	372	1400	445	563	872	403	555	269	299
29	514	595	350	384	---	443	544	1060	428	564	279	305
30	432	668	330	380	---	455	521	1190	405	626	272	287
31	411	---	380	370	---	462	---	1450	---	612	360	---
TOTAL	13175	15433	14192	10819	31232	19601	15469	29047	38713	35204	12832	12365
MEAN	425	514	458	349	1115	632	516	937	1290	1136	414	412
MAX	623	779	653	466	2460	1280	587	2690	3540	4170	655	672
MIN	367	402	330	290	370	443	442	492	403	388	269	272
CFSM	.26	.31	.28	.21	.68	.39	.31	.57	.79	.69	.25	.25
IN.	.30	.35	.32	.25	.71	.44	.35	.66	.88	.80	.29	.28

CAL YR 1980 TOTAL 578308 MEAN 1580 MAX 11400 MIN 330 CFSM .96 IN 13.10
WTR YR 1981 TOTAL 248082 MEAN 680 MAX 4170 MIN 269 CFSM .41 IN 5.62

01631000 SOUTH FORK SHENANDOAH RIVER AT FRONT ROYAL, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949, 1953-56, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1952 to September 1956, April 1968 to September 1977, October 1979 to August 1980.
WATER TEMPERATURES: October 1952 to September 1956, April 1968 to September 1977, October 1979 to August 1980.
SUSPENDED-SEDIMENT DISCHARGE: April 1953 to September 1956.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
OCT												
02...	1145	407	382	8.2	20.0	5	150	0	37	14	15	3.0
NOV												
20...	1130	752	424	8.1	5.5	5	190	9	46	18	13	2.2
JAN												
06...	1015	310	415	8.4	.0	<5	190	18	49	16	14	2.8
MAR												
02...	1310	1190	210	8.2	9.0	<5	88	19	24	6.8	7.0	1.9
APR												
07...	1200	479	371	8.9	15.0	10	140	13	36	13	19	3.1
MAY												
18...	0900	794	273	8.4	19.0	<5	100	6	25	9.0	15	2.7
JUN												
30...	1030	414	302	8.8	24.0	2	130	24	37	10	8.7	2.3
AUG												
26...	0900	289	343	8.6	23.0	2	140	11	35	13	15	5.8

< Actual value is known to be less than the value shown.

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)
OCT											
02...	150	28	11	.1	4.2	216	209	.010	1.4	.260	<10
NOV											
20...	180	18	17	.1	<.1	233	223	.010	.55	.010	10
JAN											
06...	170	27	16	.2	<.1	241	227	.010	2.2	.230	<10
MAR											
02...	69	17	7.7	<.1	4.4	127	110	.030	1.4	.190	20
APR											
07...	130	32	13	.1	<.1	209	195	.010	.96	.260	20
MAY											
18...	94	25	11	.1	3.1	169	147	<.010	.53	.240	<10
JUN											
30...	110	16	12	<.1	5.5	165	158	<.010	.52	.040	<10
AUG											
26...	130	27	15	.1	4.8	223	194	<.010	.70	.170	40

< Actual value is known to be less than the value shown.

01632000 NORTH FORK SHENANDOAH RIVER AT COOTES STORE, VA

LOCATION.--Lat 38°38'13", long 78°51'11", Rockingham County, Hydrologic Unit 02070006, on right bank at Cootes Store, 300 ft (90 m) upstream from bridge on State Highway 259, and 3.7 mi (6.0 km) upstream from Linville Creek.

DRAINAGE AREA.--210 mi² (544 km²).

PERIOD OF RECORD.--February 1925 to current year.

REVISED RECORDS.--WSP 726: 1928-31. WSP 951: 1936, 1939(M). WSP 1171: 1935, 1937, 1938(M). WSP 1502: 1926, 1927-28(M), 1929, 1930-34(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,051.8 ft (320.59 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Nov. 15, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 8 to Nov. 6, Jan. 8 to Feb. 20, and Feb. 28 to Apr. 22, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years, 191 ft³/s (5.409 m³/s), 12.35 in/yr (314 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s (1,420 m³/s) Oct. 15, 1942, gage height, 25.3 ft (7.71 m), from floodmark, from rating curve extended above 9,000 ft³/s (250 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 0.20 ft³/s (0.006 m³/s) Aug. 28, 29, Sept. 4, 1957, Sept. 7-10, 1966; minimum gage height, 1.74 ft (0.530 m) Sept. 7-10, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1836, that of Oct. 15, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,770 ft³/s (50.1 m³/s) May 28, gage height, 6.08 ft (1.853 m), no peak above base of 3,500 ft³/s (99 m³/s); minimum, 1.3 ft³/s (0.037 m³/s) Aug. 30, gage height, 1.88 ft (0.573 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	4.4	30	9.4	7.0	110	20	55	353	26	6.5	26
2	4.0	4.4	28	9.3	22	93	20	58	291	38	5.7	21
3	4.1	4.4	27	8.4	33	80	20	57	424	45	5.6	273
4	4.9	4.4	25	7.2	27	68	20	57	434	57	5.7	227
5	4.4	4.5	24	8.4	24	70	21	55	372	68	4.8	43
6	4.0	4.5	24	9.8	22	61	21	54	468	111	5.9	17
7	3.9	4.4	22	8.8	21	53	21	52	523	107	14	45
8	3.9	4.3	21	8.4	20	47	21	46	359	85	22	90
9	3.8	4.6	20	8.0	20	42	21	41	252	68	11	41
10	3.7	5.0	20	7.6	25	38	22	37	475	53	9.0	28
11	3.7	4.7	18	7.2	180	36	21	49	411	44	7.4	21
12	3.6	4.5	18	7.6	145	34	21	172	256	35	7.0	17
13	3.6	4.9	17	7.3	120	32	27	183	185	30	5.9	14
14	3.6	4.5	16	7.0	102	30	24	139	409	26	5.3	12
15	3.6	4.7	15	6.8	85	28	28	128	229	22	4.8	13
16	3.7	5.3	15	7.2	73	29	32	132	152	20	4.4	112
17	3.8	6.6	14	7.4	63	28	32	105	109	18	3.8	84
18	4.1	20	14	7.7	58	29	30	90	84	16	3.6	51
19	4.7	14	13	8.0	54	27	28	335	67	14	3.2	36
20	4.5	12	12	7.8	200	25	28	1230	348	12	2.9	28
21	4.4	13	11	7.6	644	24	28	726	189	12	2.7	23
22	4.5	12	11	7.5	462	23	30	399	136	10	2.5	19
23	4.5	11	11	7.1	332	22	27	261	99	9.3	2.2	16
24	4.5	54	11	7.1	470	21	28	188	73	11	2.1	14
25	10	85	9.2	7.1	334	21	29	142	58	12	1.9	13
26	8.0	45	9.0	7.0	228	20	28	123	45	10	1.8	12
27	6.3	35	9.7	7.0	172	20	34	151	37	8.6	1.7	11
28	5.4	37	9.5	6.9	136	20	50	454	31	9.9	1.6	9.6
29	4.8	36	9.9	7.1	---	20	50	1330	27	9.9	1.5	8.7
30	4.6	33	9.8	7.1	---	20	49	824	24	8.0	2.0	8.3
31	4.4	---	9.2	7.0	---	20	---	531	---	7.2	12	---
TOTAL	141.1	487.1	503.3	237.8	4079.0	1191	831	8204	6920	1002.9	170.5	1333.6
MEAN	4.55	16.2	16.2	7.67	146	38.4	27.7	265	231	32.4	5.50	44.5
MAX	10	85	30	9.8	644	110	50	1330	523	111	22	273
MIN	3.6	4.3	9.0	6.8	7.0	20	20	37	24	7.2	1.5	8.3
CFSM	.02	.08	.08	.04	.70	.18	.13	1.26	1.10	.15	.03	.21
IN.	.02	.09	.09	.04	.72	.21	.15	1.45	1.23	.18	.03	.24

CAL YR 1980 TOTAL 62552.2 MEAN 171 MAX 3460 MIN 3.1 CFSM .81 IN 11.08
WTR YR 1981 TOTAL 25101.3 MEAN 68.8 MAX 1330 MIN 1.5 CFSM .33 IN 4.45

01632900 SMITH CREEK NEAR NEW MARKET, VA

LOCATION.--38°41'36", long 78°38'35", Shenandoah County, Hydrologic Unit 02070006, on left bank 25 ft (8 m) upstream from bridge on State Highway 616, 3.6 mi (5.8 km) north of New Market, and 4.4 mi (7.1 km) upstream from mouth.

DRAINAGE AREA.--93.2 mi² (241.4 km²).

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 881.50 ft (268.681 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 2, 1963, on right bank a short distance downstream, at datum 0.71 ft (0.216 m) higher.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--21 years, 71.5 ft³/s (2.025 m³/s), 10.42 in/yr (265 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft³/s (300 m³/s) Oct. 6, 1972, gage height, 16.38 ft (4.993 m), from rating curve extended above 2,300 ft³/s (65 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 4.5 ft³/s (0.13 m³/s) Feb. 9, 1981, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 1, 1959, reached a stage of 10.7 ft (3.26 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 229 ft³/s (6.49 m³/s) Feb. 11, gage height, 3.25 ft (0.991 m), no peak above base of 650 ft³/s (18 m³/s); minimum, 4.5 ft³/s (0.13 m³/s) Feb. 9, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	20	30	16	15	47	18	23	42	23	18	13
2	18	19	28	16	25	44	18	23	51	65	18	12
3	18	19	27	14	42	40	17	20	67	57	17	12
4	19	19	25	13	29	37	16	18	65	68	18	16
5	18	20	25	14	21	37	16	17	91	72	17	18
6	18	20	23	15	21	36	17	16	98	103	18	14
7	17	19	23	16	20	33	16	17	91	77	20	13
8	17	19	23	15	19	31	16	16	67	61	30	13
9	17	18	22	15	19	30	16	15	56	51	27	13
10	17	18	22	15	18	28	16	16	64	44	20	12
11	17	18	20	14	104	27	16	18	59	46	18	11
12	17	17	20	13	88	26	17	64	47	39	19	11
13	17	17	19	11	52	26	24	45	40	35	18	11
14	17	17	19	12	41	24	27	30	85	33	17	10
15	17	18	16	13	36	23	23	28	62	30	17	11
16	18	18	18	14	32	23	22	26	47	29	16	23
17	17	20	19	14	32	23	21	23	39	28	16	17
18	18	45	18	15	32	23	22	22	35	26	15	14
19	23	32	17	16	34	23	20	39	34	24	14	12
20	21	24	17	17	151	22	20	109	47	23	14	11
21	20	21	15	19	156	22	20	85	80	23	14	10
22	20	19	16	20	109	21	18	63	54	22	14	10
23	20	18	18	18	87	20	19	51	42	20	14	9.6
24	20	42	17	17	77	20	20	43	34	24	14	9.2
25	42	59	15	17	67	19	18	37	30	35	13	9.2
26	41	39	14	16	58	18	18	32	28	26	11	9.2
27	27	33	16	15	53	18	29	29	26	22	11	9.2
28	22	43	17	15	50	19	24	38	25	24	11	8.4
29	21	39	17	13	---	18	20	91	23	26	11	8.0
30	20	34	17	13	---	19	19	59	21	23	12	8.4
31	20	---	18	13	---	20	---	68	---	19	13	---
TOTAL	632	764	613	465	1488	817	583	1161	1550	1198	505	358.2
MEAN	20.4	25.5	19.8	15.0	53.1	26.4	19.4	37.5	51.7	38.6	16.3	11.9
MAX	42	59	30	20	156	47	29	109	98	103	30	23
MIN	17	17	14	11	15	18	16	15	21	19	11	8.0
CFSM	.22	.27	.21	.16	.57	.28	.21	.40	.56	.41	.18	.13
IN.	.25	.30	.24	.19	.59	.33	.23	.46	.62	.48	.20	.14

CAL YR 1980 TOTAL 27400.0 MEAN 74.9 MAX 600 MIN 14 CFSM .80 IN 10.94
WTR YR 1981 TOTAL 10134.2 MEAN 27.8 MAX 156 MIN 8.0 CFSM .30 IN 4.04

01633000 NORTH FORK SHENANDOAH RIVER AT MOUNT JACKSON, VA

LOCATION.--Lat 38°44'43", long 78°38'21", Shenandoah County, Hydrologic Unit 02070006, on right bank at downstream side of bridge on State Highway 698 at Mount Jackson and 0.3 mi (0.5 km) downstream from Mill Creek.

DRAINAGE AREA.--506 mi² (1,311 km²).

PERIOD OF RECORD.--October 1943 to current year.

REVISED RECORDS.--WSP 1382: 1945, 1948-50(M), 1951-53(P), 1954(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 838.55 ft (255.590 m) National Geodetic Vertical Datum of 1929. Prior to July 1, 1976, nonrecording gage at same site and datum.

REMARKS.--Records good. Some diversion during low flow by irrigation at points above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 383 ft³/s (10.85 m³/s), 10.28 in/yr (261 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,500 ft³/s (1,150 m³/s) Oct. 6, 1972, gage height, 18.10 ft (5.517 m), from rating curve extended above 18,000 ft³/s (510 m³/s) on basis of peak runoff for flood in October 1942 for stations at Cootes Store and near Strasburg; minimum observed, 7.0 ft³/s (0.20 m³/s) Sept. 3, 1966, gage height, 1.97 ft (0.600 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of 20.2 ft (6.16 m), from floodmarks, discharge, about 80,000 ft³/s (2,300 m³/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,740 ft³/s (49.3 m³/s) May 29, gage height, 5.97 ft (1.820 m), no peak above base of 5,000 ft³/s (140 m³/s); minimum, 12 ft³/s (0.34 m³/s) Dec. 25, Aug. 29, 30; minimum gage height, 2.03 ft (0.619 m) Dec. 25, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	62	112	51	41	266	71	144	545	51	35	92
2	55	62	103	51	74	234	74	150	444	49	33	53
3	57	62	98	44	98	207	69	141	508	62	33	40
4	59	62	89	34	130	192	64	132	610	55	35	57
5	57	64	87	35	120	181	66	126	565	53	32	107
6	55	64	87	42	100	179	66	123	588	185	36	73
7	55	64	84	52	98	157	64	123	768	234	40	53
8	53	64	82	42	89	144	64	114	588	188	60	53
9	53	64	76	40	88	135	66	100	438	153	60	101
10	53	66	76	40	84	123	66	95	490	130	44	66
11	51	66	71	39	620	117	64	106	678	117	35	49
12	51	62	66	36	440	112	66	203	441	104	40	42
13	51	62	64	34	304	106	76	295	315	88	40	36
14	51	62	62	36	222	103	82	253	626	83	35	32
15	51	66	59	37	184	95	79	224	441	71	32	35
16	53	69	57	38	164	95	74	224	292	62	30	125
17	55	74	57	38	157	92	82	203	212	60	28	162
18	57	135	55	39	147	89	82	176	168	55	26	78
19	64	132	55	40	147	92	76	231	153	49	23	69
20	64	100	53	41	472	89	76	1300	565	47	23	51
21	62	87	46	43	928	87	76	1070	332	46	23	46
22	64	79	48	46	951	87	74	655	221	44	22	36
23	64	76	53	44	634	84	76	438	171	38	20	31
24	64	114	55	42	752	82	84	315	130	42	19	24
25	103	262	41	42	644	79	79	237	109	71	18	20
26	129	174	40	42	477	79	79	188	83	62	17	20
27	87	132	45	41	376	76	106	203	69	49	17	19
28	74	132	48	41	304	76	123	256	62	51	16	19
29	69	132	53	41	---	76	129	1400	55	60	14	23
30	64	120	53	42	---	76	123	1110	53	49	16	23
31	62	---	51	41	---	76	---	768	---	40	28	---
TOTAL	1942	2770	2026	1274	8845	3677	2376	11103	10720	2448	930	1635
MEAN	62.6	92.3	65.4	41.1	316	119	79.2	358	357	79.0	30.0	54.5
MAX	129	262	112	52	951	266	129	1400	768	234	60	162
MIN	51	62	40	34	41	76	64	95	53	38	14	19
CFSM	.12	.18	.13	.08	.63	.24	.16	.71	.71	.16	.06	.11
IN.	.14	.20	.15	.09	.65	.27	.17	.82	.79	.18	.07	.12

CAL YR 1980 TOTAL 145205 MEAN 397 MAX 3930 MIN 40 CFSM .79 IN 10.68
WTR YR 1981 TOTAL 49746 MEAN 136 MAX 1400 MIN 14 CFSM .27 IN 3.66

01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA

LOCATION.--Lat 38°58'36", long 78°20'11", Warren County, Hydrologic Unit 02070006, on right bank at downstream side of bridge on State Highway 55, 1.5 mi (2.4 km) southeast of Strasburg, 2.2 mi (3.5 km) upstream from Cedar Creek, and 10 mi (16 km) upstream from confluence with South Fork.

DRAINAGE AREA.--768 mi^2 (1,989 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1925 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1001: 1931. WSP 1171: 1929(M), 1933(M), 1936-37. WSP 1302: 1928(M), 1930(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 494.03 ft (150.580 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 21, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--56 years, 583 ft^3/s (16.51 m^3/s), 10.31 in/yr (262 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 100,000 ft^3/s (2,830 m^3/s) Oct. 16, 1942, gage height, 31.2 ft (9.51 m), from high-water mark in well, from rating curve extended above 46,000 ft^3/s (1,300 m^3/s); minimum, 6.0 ft^3/s (0.17 m^3/s) Feb. 9, 1934, gage height, 1.52 ft (0.463 m); minimum daily, 41 ft^3/s (1.16 m^3/s) Sept. 26, Oct. 1, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1870, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,930 ft^3/s (54.7 m^3/s) May 21, gage height, 4.71 ft (1.436 m), no peak above base of 6,000 ft^3/s (170 m^3/s); minimum, 66 ft^3/s (1.87 m^3/s) part of each day Aug. 23-30, gage height, 1.71 ft (0.521 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	164	149	246	149	187	433	151	240	1020	161	107	94
2	156	148	229	139	164	385	156	235	802	158	99	91
3	154	142	216	140	201	348	149	252	672	176	95	117
4	158	144	206	145	249	315	149	242	946	261	94	123
5	154	145	194	140	302	305	147	230	951	243	97	116
6	154	145	186	150	256	290	148	223	861	255	92	157
7	152	143	182	150	206	278	144	217	907	287	99	220
8	149	146	178	144	171	257	143	209	1030	320	120	175
9	144	150	177	144	196	239	144	203	791	276	99	127
10	145	149	177	140	200	227	147	193	760	237	101	117
11	137	145	171	136	239	218	150	198	1380	208	128	142
12	127	142	167	147	944	207	159	225	1030	189	85	121
13	127	143	162	140	685	200	183	237	713	181	87	109
14	134	143	159	130	498	194	206	408	612	166	88	101
15	135	141	156	130	399	187	235	383	908	149	86	105
16	136	146	155	140	329	183	231	341	681	140	102	153
17	137	155	152	140	283	178	221	331	499	134	71	190
18	137	189	150	145	265	174	216	326	393	123	72	291
19	141	198	149	155	257	173	211	328	330	119	75	229
20	140	257	150	147	454	170	208	396	327	120	75	177
21	133	228	146	142	857	170	197	1710	911	118	72	152
22	137	192	150	143	1300	167	192	1270	638	113	70	136
23	139	175	150	141	1110	162	188	821	469	109	69	125
24	132	226	156	137	823	157	187	594	367	100	69	116
25	171	268	155	130	903	154	186	462	301	99	69	111
26	194	445	153	130	776	151	184	375	259	99	69	108
27	230	375	180	125	606	150	190	317	224	122	69	105
28	226	294	167	129	500	148	189	352	199	124	69	104
29	183	259	149	133	---	147	228	423	181	118	69	99
30	161	259	145	158	---	150	236	1760	167	110	69	97
31	152	---	154	158	---	151	---	1390	---	113	85	---
TOTAL	4739	5841	5266	4377	13360	6668	5475	14891	19329	5128	2651	4108
MEAN	153	195	170	141	477	215	183	480	644	165	85.5	137
MAX	230	445	246	158	1300	433	236	1760	1380	320	128	291
MIN	127	141	145	125	164	147	143	193	167	99	69	91
CFSM	.20	.25	.22	.18	.62	.28	.24	.63	.84	.22	.11	.18
IN.	.23	.28	.26	.21	.65	.32	.27	.72	.94	.25	.13	.20

CAL YR 1980 TOTAL 226020 MEAN 618 MAX 6310 MIN 121 CFSM .81 IN 10.95
WTR YR 1981 TOTAL 91833 MEAN 252 MAX 1760 MIN 69 CFSM .33 IN 4.45

01634000 NORTH FORK SHENANDOAH RIVER NEAR STRASBURG, VA.--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1949, 1952, 1956, 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1955 to September 1956.
WATER TEMPERATURES: October 1948 to September 1949, October 1955 to September 1956.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
OCT 02...	0920	183	430	8.2	17.5	<5	190	11	45	19	16	2.6
NOV 20...	1000	266	402	8.2	4.0	5	160	14	41	15	19	3.3
JAN 06...	1300	150	461	8.4	1.0	<5	220	10	55	20	8.3	2.0
MAR 02...	1140	384	260	8.2	7.5	5	120	29	34	8.8	6.0	1.8
APR 07...	1000	142	412	8.7	12.0	15	190	20	48	17	9.6	1.9
MAY 18...	1115	323	304	7.9	17.0	<5	140	15	36	11	8.2	2.4
JUN 30...	0845	182	302	8.4	23.5	3	100	4	26	8.5	12	2.4
AUG 26...	1100	69	395	8.4	20.0	1	140	6	28	16	18	3.2

< Actual value is known to be less than the value shown.

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)
OCT 02...	180	16	21	.1	3.1	236	233	.010	.54	.030	<10
NOV 20...	150	30	12	.1	.1	230	211	.010	1.6	.270	10
JAN 06...	210	20	17	.1	.2	260	249	.010	1.9	.040	<10
MAR 02...	92	17	9.2	<.1	3.4	150	136	.030	1.9	.080	20
APR 07...	170	18	13	.1	<.1	219	210	.010	.38	.100	20
MAY 18...	120	17	11	.1	5.8	189	164	<.010	.53	.140	<10
JUN 30...	96	23	11	<.1	1.5	159	142	<.010	.46	.140	20
AUG 26...	130	17	25	.1	1.5	212	187	<.010	.14	.070	80

< Actual value is known to be less than the value shown.

01634500 CEDAR CREEK NEAR WINCHESTER, VA

LOCATION.--Lat 39°04'52", long 78°19'47", Frederick County, Hydrologic Unit 02070006, on left bank 0.2 mi (0.3 km) upstream from Fawcett Run, 0.3 mi (0.5 km) upstream from bridge on State Highway 628, 1.3 mi (2.1 km) downstream from Froman Run, and 11.4 mi (18.3 km) southwest of Winchester.

DRAINAGE AREA.--103 mi^2 (267 km^2).

PERIOD OF RECORD.--June 1937 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 647.09 ft (197.233 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Oct. 6 to Nov. 20, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--44 years, 91.9 ft^3/s (2.603 m^3/s), 12.12 in/yr (308 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft^3/s (623 m^3/s) Oct. 15, 1942, gage height, 27.0 ft (8.23 m), from floodmarks, from rating curve extended above 15,000 ft^3/s (420 m^3/s); minimum, 1.8 ft^3/s (0.051 m^3/s) Feb. 19, 1941, Dec. 7, 1958, result of freezeups; minimum daily, 2.8 ft^3/s (0.079 m^3/s) Sept. 7, 1964, Sept. 3, 4, 7, 8, 1966; minimum gage height, 1.04 ft (0.317 m) Feb. 19, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 17, 1936, reached a stage of about 25 ft (7.6 m), discharge, about 18,000 ft^3/s (510 m^3/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s (28 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 20	0630	1030	29.2	4.66	1.420
June 13	2100	*3540	100	a9.17	2.795
June 14	0300	2580	73.1	7.58	2.310

a From high-water mark.

Minimum discharge, 6.8 ft^3/s (0.19 m^3/s) Aug. 23, 25, 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	18	34	12	25	68	24	61	87	21	13	43
2	14	18	28	11	55	59	32	100	111	26	12	13
3	14	19	28	11	68	51	29	73	158	28	12	14
4	15	19	28	10	47	46	27	64	272	40	12	14
5	14	19	28	10	40	54	28	58	150	35	12	21
6	13	18	28	9.6	39	59	31	57	122	30	13	15
7	13	18	27	9.6	40	57	28	54	104	26	18	14
8	13	18	26	9.0	40	52	26	47	78	22	23	41
9	13	18	26	8.0	34	49	27	42	68	20	16	24
10	13	19	26	7.5	36	46	28	47	72	19	12	14
11	13	21	24	7.4	171	43	100	57	71	18	11	12
12	13	20	24	7.2	128	41	138	84	51	16	10	10
13	13	19	24	7.0	64	38	323	64	459	16	9.6	9.6
14	13	19	23	7.0	49	36	252	59	959	16	9.1	9.1
15	13	19	22	8.0	44	33	276	57	210	15	9.6	9.6
16	14	20	22	10	40	35	188	58	111	14	10	30
17	14	20	22	13	40	38	150	50	78	15	9.1	26
18	15	40	21	17	40	34	122	47	59	15	8.2	16
19	14	30	21	22	44	32	97	73	55	14	8.2	12
20	15	23	20	28	500	31	97	113	155	14	7.8	12
21	13	22	17	35	354	30	81	89	81	16	7.8	11
22	13	21	16	37	222	28	71	76	108	15	8.2	11
23	13	20	15	37	185	28	69	66	65	14	7.5	10
24	13	123	15	36	200	27	66	57	49	14	7.8	9.6
25	45	114	16	36	140	25	59	50	40	16	7.3	10
26	40	50	15	37	108	24	54	44	35	16	7.8	9.6
27	25	38	13	36	85	24	58	42	29	19	7.8	9.6
28	22	42	12	35	75	25	55	49	28	46	8.2	9.6
29	21	41	12	30	---	24	48	93	24	70	8.2	8.6
30	20	34	13	25	---	23	46	66	21	24	8.2	9.1
31	18	---	12	24	---	25	---	131	---	16	69	---
TOTAL	516	920	658	592.3	2913	1185	2630	2028	3910	686	383.7	457.4
MEAN	16.6	30.7	21.2	19.1	104	38.2	87.7	65.4	130	22.1	12.4	15.2
MAX	45	123	34	37	500	68	323	131	959	70	69	43
MIN	13	18	12	7.0	25	23	24	42	21	14	7.3	8.6
CFSM	.16	.30	.21	.19	1.01	.37	.85	.64	1.26	.22	.12	.15
IN.	.19	.33	.24	.21	1.05	.43	.95	.73	1.41	.25	.14	.17

CAL YR 1980 TOTAL 38015.0 MEAN 104 MAX 2340 MIN 12 CFSM 1.01 IN 13.73
WTR YR 1981 TOTAL 16879.4 MEAN 46.2 MAX 959 MIN 7.0 CFSM .45 IN 6.10

01635500 PASSAGE CREEK NEAR BUCKTON, VA

LOCATION.--Lat 38°57'29", long 78°16'01", Warren County, Hydrologic Unit 02070006, on right bank 350 ft (107 m) upstream from bridge on State Highway 55, 1.2 mi (1.9 km) south of Buckton railroad station, 1.4 mi (2.3 km) upstream from mouth, and 4.2 mi (6.8 km) west of Riverton.

DRAINAGE AREA.--87.8 mi² (227.4 km²).

PERIOD OF RECORD.--October 1905 to July 1906 (gage heights only), April 1932 to current year. Prior to October 1966, published as "at Buckton."

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 525.14 ft (160.063 m) National Geodetic Vertical Datum of 1929. October 1905 to July 1906, nonrecording gage at site 1 mi (1.6 km) downstream at different datum. Apr. 4, 1932, to Oct. 7, 1937, nonrecording gage at site 350 ft (107 m) downstream at different datum.

REMARKS.--Records good. Occasional diurnal fluctuation during low flow caused by State Fish Hatchery 2 mi (3 km) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--49 years, 68.1 ft³/s (1.929 m³/s), 10.53 in/yr (267 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,000 ft³/s (595 m³/s) Oct. 15, 1942, gage height, 15.5 ft (4.72 m), from high-water mark in well, from rating curve extended above 5,200 ft³/s (150 m³/s); minimum observed, 0.1 ft³/s (0.003 m³/s) Aug. 5, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 586 ft³/s (16.6 m³/s) Feb. 21, gage height, 5.32 ft (1.622 m), no peak above base of 1,000 ft³/s (28 m³/s); minimum, 1.5 ft³/s (0.042 m³/s) Jan. 12, gage height, 2.81 ft (0.856 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.7	7.8	18	12	8.0	52	15	29	102	11	6.2	12
2	7.6	7.3	16	11	18	44	16	47	107	13	5.6	8.6
3	7.8	7.3	16	7.3	40	37	15	42	100	18	5.2	6.2
4	8.8	7.8	16	7.3	40	32	14	35	264	58	5.4	6.0
5	11	8.6	15	8.0	22	34	14	31	145	42	5.2	12
6	8.8	8.6	14	7.6	22	37	14	29	125	34	6.0	18
7	7.6	8.3	13	8.0	18	30	13	28	128	27	7.1	13
8	7.1	8.0	13	7.8	18	26	13	24	94	20	10	9.1
9	6.9	8.3	13	6.9	13	25	13	22	76	16	7.8	8.8
10	6.5	8.3	13	4.0	13	23	13	21	297	14	6.2	9.1
11	6.2	7.6	13	2.0	53	22	14	23	209	12	4.8	7.3
12	5.8	7.3	12	1.9	82	20	14	76	123	11	5.0	5.8
13	5.4	7.3	12	1.6	57	20	22	65	98	11	8.0	4.6
14	5.4	7.6	11	1.7	38	19	31	50	123	9.4	7.3	4.4
15	5.4	7.8	11	1.9	23	19	31	42	111	8.6	6.5	5.0
16	5.8	8.3	11	3.8	22	19	26	39	76	7.8	5.2	59
17	6.5	9.7	11	5.8	26	19	24	32	58	6.9	4.6	58
18	6.0	19	10	7.8	23	18	24	29	46	6.7	4.0	29
19	5.8	28	10	8.8	27	18	23	39	37	6.0	3.6	17
20	5.6	18	8.6	10	263	17	23	123	63	6.7	3.3	13
21	5.4	14	5.8	13	388	17	23	100	57	6.9	3.2	11
22	5.4	12	8.0	18	216	16	21	72	46	9.7	3.0	10
23	5.6	11	8.0	19	138	16	20	58	35	7.1	3.0	8.3
24	5.6	32	10	16	114	15	23	47	28	6.0	2.8	7.3
25	15	92	8.0	13	88	14	27	40	23	6.2	2.5	6.9
26	40	37	8.0	14	71	14	25	33	20	9.4	2.5	6.5
27	18	23	7.8	14	60	14	28	30	16	10	2.2	6.2
28	12	23	8.6	14	55	14	31	62	14	8.8	2.1	5.6
29	10	26	10	12	---	13	30	82	12	9.4	2.0	4.8
30	8.8	22	12	8.3	---	13	28	61	11	10	2.0	4.4
31	7.8	---	10	6.9	---	14	---	145	---	7.6	14	---
TOTAL	270.3	492.9	352.8	273.4	1956.0	691	628	1556	2644	430.2	156.3	376.9
MEAN	8.72	16.4	11.4	8.82	69.9	22.3	20.9	50.2	88.1	13.9	5.04	12.6
MAX	40	92	18	19	388	52	31	145	297	58	14	59
MIN	5.4	7.3	5.8	1.6	8.0	13	13	21	11	6.0	2.0	4.4
CFSM	.10	.19	.13	.10	.80	.25	.24	.57	1.00	.16	.06	.14
IN.	.11	.21	.15	.12	.83	.29	.27	.66	1.12	.18	.07	.16

CAL YR 1980 TOTAL 27373.6 MEAN 74.8 MAX 1380 MIN 2.5 CFSM .85 IN 11.60
WTR YR 1981 TOTAL 9827.8 MEAN 26.9 MAX 388 MIN 1.6 CFSM .31 IN 4.16

01636500 SHENANDOAH RIVER AT MILLVILLE, WV
(National stream-quality accounting network station)

LOCATION.--Lat 39°16'55", long 77°47'22", Jefferson County, Hydrologic Unit 02070007, on left bank 0.4 mi (0.6 km) downstream from Cattail Run, 1.0 mi (1.6 km) upstream from Millville, 5.0 mi (8.0 km) upstream from Harpers Ferry, and at mile 5.0 (8.0 km).

DRAINAGE AREA.--3,040 mi^2 (7,874 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1895 to March 1909, August 1928 to current year.

REVISED RECORDS.--WSP 951: 1936(M). WSP 1432: Drainage area at former site, 1895-99, 1901-2, 1905, 1907-8, 1932(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 293.00 ft (89.306 m) National Geodetic Vertical Datum of 1929. Apr. 15, 1895, to Mar. 31, 1909, nonrecording gage at site 0.8 mi (1.3 km) downstream at datum 0.32 ft (0.098 m) higher.

REMARKS.--Records good except those for January, which are poor. Regulation by hydroelectric plants, particularly that of Potomac Light and Power Co., 0.5 mi (0.8 km) upstream from station. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--66 years (water years 1896-1908, 1929-81), 2,681 ft^3/s (75.93 m^3/s), 11.98 in/yr (304 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 230,000 ft^3/s (6,510 m^3/s) Oct. 16, 1942, gage height, 32.4 ft (9.88 m), from floodmarks; minimum, about 59 ft^3/s (1.67 m^3/s) Oct. 4, 1930, gage height, 0.39 ft (0.119 m); minimum daily, 194 ft^3/s (5.49 m^3/s) July 24, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1870 reached practically same stage as flood of Mar. 18, 1936, 26.36 ft (8.035 m), discharge, 151,000 ft^3/s (4,280 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,440 ft^3/s (154 m^3/s) June 5, gage height, 5.00 ft (1.524 m), no peak above base of 15,000 ft^3/s (420 m^3/s); minimum, 216 ft^3/s (6.12 m^3/s) Sept. 1, gage height, 0.88 ft (0.268 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	648	593	964	604	450	2220	695	1080	3460	771	[illegible]	464
2	568	573	962	622	637	2020	852	1130	2930	659	747	597
3	586	582	931	664	924	1870	652	1270	2810	755	659	559
4	592	566	795	680	586	1470	877	1290	3320	1280	617	468
5	580	589	808	520	604	1550	819	1240	4790	2170	584	491
6	704	589	759	487	616	1500	755	1100	4950	2250	631	594
7	532	576	724	568	712	1410	755	1050	4380	4280	740	99
8	538	581	738	650	760	1350	652	1000	3770	4170	710	58
9	568	590	709	664	872	1290	673	938	3420	3280	687	878
10	580	597	723	680	574	1220	747	938	2930	2640	687	808
11	574	585	685	634	712	1140	795	1000	3150	2020	843	880
12	556	603	679	604	1160	1050	860	1010	3330	1730	811	764
13	520	591	680	610	2290	1090	1140	1060	2680	1950	795	703
14	520	555	667	629	2950	1000	1400	1270	2780	1430	695	521
15	538	563	660	637	1860	956	1510	1420	3280	1120	597	564
16	514	567	635	648	1460	1000	1510	1320	2890	1070	638	657
17	556	572	583	680	1280	938	1400	1310	2580	1010	617	761
18	538	662	623	680	1140	929	1180	1290	1810	929	533	884
19	532	709	615	712	1160	920	1190	1360	1540	894	474	814
20	544	807	606	674	1410	894	1140	1380	1390	732	521	776
21	574	868	577	671	3400	886	1060	1690	1430	869	515	735
22	584	963	544	695	4870	886	1010	3840	2030	725	462	680
23	561	814	509	653	4890	903	1000	4110	1860	747	451	611
24	558	742	509	620	4190	869	1060	3140	1590	590	411	545
25	638	1010	448	585	3590	763	1040	2490	1290	645	408	480
26	839	1300	390	562	3390	852	1020	2080	1060	638	422	493
27	866	1160	492	509	3060	638	983	1640	965	877	426	498
28	816	1240	574	595	2620	795	956	1480	869	903	394	485
29	876	1150	712	563	---	740	1020	2030	811	1020	394	422
30	779	1030	667	532	---	779	1020	2250	803	835	397	421
31	665	---	616	514	---	787	---	3680	---	795	418	---
TOTAL	19044	22327	20584	19145	52167	34715	29771	51886	74898	43784	18111	19010
MEAN	614	744	664	618	1863	1120	992	1674	2497	1412	584	634
MAX	876	1300	964	712	4890	2220	1510	4110	4950	4280	843	884
MIN	514	555	390	487	450	638	652	938	803	590	394	421
CFSM	.20	.25	.22	.20	.61	.37	.33	.55	.82	.46	.19	.21
IN.	.23	.27	.25	.23	.64	.42	.36	.63	.92	.54	.22	.23

CAL YR 1980 TOTAL 978952 MEAN 2675 MAX 18300 MIN 390 CFSM .88 IN 11.98
WTR YR 1981 TOTAL 405442 MEAN 1111 MAX 4950 MIN 390 CFSM .37 IN 4.96

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-63, 1965, 1969-71, 1979 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
NOV 12...	1045	604	610	8.4	6.5	.20	11.6	--	45	200	55	15
JAN 19...	1215	720	714	8.2	.5	.40	14.3	--	--	240	70	16
MAR 17...	1100	912	318	8.8	5.0	.60	12.8	<1	66	170	48	11
MAY 19...	1200	1360	352	8.2	17.0	1.4	8.2	52	1300	140	39	9.6
JUL 20...	1200	869	368	9.2	29.0	4.1	13.2	K13	550	110	30	9.0
SEP 14...	1030	468	510	--	24.0	5.0	8.3	K20	950	160	46	12

< Actual value is known to be less than the value shown.
K Result based on colony count outside optimal range.

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)
NOV 12...	42	31	1.3	3.1	160	110	26	.2	.0	372	351	.51
JAN 19...	52	32	1.5	2.8	110	150	32	.2	.8	234	400	.54
MAR 17...	35	31	1.2	2.1	120	84	13	.1	.4	271	271	.37
MAY 19...	24	27	.9	2.7	110	57	12	.1	3.8	248	216	.34
JUL 20...	33	38	1.4	2.9	78	75	12	.1	6.1	238	215	.32
SEP 14...	35	31	1.2	3.2	140	64	25	.1	4.2	283	279	.38

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)
NOV 12...	607	.79	.84	.010	.010	.01	.01	.27	.29	.28	.00	.30
JAN 19...	455	2.2	2.2	.170	.160	.21	.21	.57	.42	.74	.16	.58
MAR 17...	667	1.2	1.2	.010	.030	--	.04	.35	.19	.36	.14	.22
MAY 19...	911	.45	.43	.060	.060	--	.08	.71	.38	.77	.33	.44
JUL 20...	558	.08	.08	.010	.010	--	.01	1.3	.30	1.30	.99	.31
SEP 14...	358	1.2	1.2	.060	.060	--	.08	.62	.38	.68	.24	.44

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITROGEN, TOTAL (MG/L AS N)	NITROGEN DISSOLVED (MG/L AS N)	NITROGEN, TOTAL (MG/L AS NO3)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS TOTAL (MG/L AS PO4)	PHOSPHORUS, DISSOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC SUSPENDED TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)
NOV 12...	1.1	1.1	4.7	.130	.40	.150	1	0	1	100	60
JAN 19...	2.9	2.8	13	.180	.55	.150	2	0	2	<50	--
MAR 17...	1.6	1.4	6.9	.100	.31	.080	--	--	--	--	--
MAY 19...	1.2	.87	5.4	.190	.58	.160	2	0	2	100	60
JUL 20...	1.4	.39	6.1	.130	.40	.020	2	0	3	100	70
SEP 14...	1.9	1.6	8.3	.160	.49	.120	--	--	--	--	--

< Actual value is known to be less than the value shown.

DATE	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
NOV 12...	40	0	0	0	10	0	10	4	0	4	8
JAN 19...	50	0	0	1	10	0	10	1	0	1	5
MAR 17...	--	--	--	--	--	--	--	--	--	--	--
MAY 19...	40	1	--	<1	10	0	10	1	0	1	23
JUL 20...	30	2	1	1	30	0	30	1	0	2	4
SEP 14...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

DATE	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
NOV 12...	6	2	130	110	20	11	10	1	10	4	6
JAN 19...	5	0	50	40	<10	6	6	0	<10	4	5
MAR 17...	--	--	--	--	--	--	--	--	--	--	--
MAY 19...	21	2	200	180	20	12	11	1	30	20	7
JUL 20...	2	2	190	180	<10	8	7	1	50	50	1
SEP 14...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)
NOV 12...	<.1	.0	<.1	7	5	2	0	0	0	0	0
JAN 19...	<.1	.0	<.1	3	1	2	0	0	0	0	0
MAR 17...	--	--	--	--	--	--	--	--	--	--	--
MAY 19...	<.1	.0	<.1	16	14	2	0	0	0	0	0
JUL 20...	.2	.1	.1	14	12	2	0	0	0	0	0
SEP 14...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

DATE	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	PHYTOPLANKTON, TOTAL (CELLS PER ML)	SEDIMENT, SUSPENDED (MG/L)	SEDIMENT, DISCHARGE, SUSPENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 12...	0	30	20	9	--	3.1	.4	350	--	--	--
JAN 19...	0	80	40	40	--	2.3	.3	--	2	3.9	100
MAR 17...	--	--	--	--	2.6	--	--	3700	6	15	72
MAY 19...	0	20	--	<4	--	2.9	--	11000	24	88	85
JUL 20...	0	30	--	<4	--	3.1	3.2	550000	16	38	86
SEP 14...	--	--	--	--	3.5	--	--	6500	11	14	100

< Actual value is known to be less than the value shown.

01636500 SHENANDOAH RIVER AT MILLVILLE, WV--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	NOV 12,80	MAR 17,81	MAY 19,81	JUL 20,81	SEP 14,81
TIME	1045	1100	1200	1200	1030
TOTAL CELLS/ML	350	3700	11000	550000	6500
DIVERSITY: DIVISION	1.5	1.5	0.7	0.7	1.4
.CLASS	1.5	1.5	0.7	0.7	1.4
..ORDER	1.6	2.0	0.8	0.8	2.0
...FAMILY	1.6	2.0	1.5	1.3	2.5
....GENUS	1.6	2.0	1.6	1.8	3.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
BACILLARIOPHYTA (DIATOMS)										
.BACILLARIOPHYCEAE										
..ACHNANTHALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	--	-	--	-	--	-	100	2
..BACILLARIALES										
...NITZSCHIACEAE										
....NITZSCHIA	--	-	300	8	97	1	9400	2	66	1
..EUPODISCALES										
...COSCINODISCACEAE										
....CYCLOTELLA	39	11	--	-	150	1	2800	1	660	10
....STEPHANODISCUS	--	-	1300#	35	--	-	--	-	100	2
..FRAGILARIALES										
...FRAGILARIACEAE										
....FRAGILARIA	--	-	33	1	--	-	--	-	66	1
..NAVICULALES										
...NAVICULACEAE										
....NAVICULA	13	4	100	3	150	1	--	-	230	4
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...DICTYOSPHAERIACEAE										
....DICTYOSPHAERIUM	--	-	--	-	--	-	15000	3	--	-
...HYDRODICTYACEAE										
....PEDIASTRUM	--	-	--	-	870	8	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	190	2	*	0	600	9
....CHODATELLA	--	-	--	-	--	-	--	-	230	4
....KIRCHNERIELLA	--	-	--	-	--	-	19000	3	--	-
....OOCYSTIS	--	-	--	-	190	2	--	-	--	-
....SELENASTRUM	--	-	--	-	150	1	12000	2	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	--	-	270	4
....COELASTRUM	--	-	--	-	--	-	26000	5	270	4
....CRUCIGENIA	--	-	--	-	--	-	15000	3	--	-
....SCENEDESMUS	150#	44	--	-	7900#	73	370000#	67	2300#	35
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	500	14	97	1	*	0	500	8
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	33	1	*	0	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	--	-	800	12
....ANACYSTIS	140#	41	1400#	39	1100	10	81000	15	270	4
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	-	--	-	--	-	--	-	100	2

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

01638480 CATOCTIN CREEK AT TAYLORSTOWN, VA

LOCATION.--Lat 39°15'16", long 77°34'36", Loudoun County, Hydrologic Unit 02070008, on right bank at upstream side of bridge on State Highway 663 at Taylorstown and 3.2 mi (5.1 km) downstream from Milltown Creek.

DRAINAGE AREA.--89.6 mi² (232.1 km²).

PERIOD OF RECORD.--August 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 249.15 ft (75.941 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--10 years, 109 ft³/s (3.087 m³/s), 16.52 in/yr (420 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,800 ft³/s (674 m³/s) June 22, 1972, gage height, 23.83 ft (7.263 m), from floodmarks, from rating curve extended above 7,400 ft³/s (210 m³/s) on basis of contracted-opening measurement of peak flow; minimum daily, 1.9 ft³/s (0.054 m³/s) Sept. 14-17, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,090 ft³/s (30.9 m³/s) Feb. 11, gage height, 4.39 ft (1.338 m), no peak above base of 1,200 ft³/s (34 m³/s); minimum, 2.5 ft³/s (0.071 m³/s) Aug. 29, 30, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	6.5	16	9.4	12	70	28	54	53	23	11	38
2	7.6	6.5	15	9.0	277	59	37	106	62	30	9.9	13
3	10	7.1	13	9.0	150	51	30	57	67	52	9.3	8.8
4	18	7.6	13	6.6	80	45	26	48	290	147	11	7.6
5	9.2	8.2	13	5.9	65	44	26	45	152	114	12	9.9
6	7.1	9.3	12	5.2	33	88	35	43	82	54	11	11
7	6.5	8.8	12	8.0	25	88	28	42	67	41	13	11
8	5.4	8.2	12	9.2	21	67	25	38	52	34	15	18
9	5.4	7.6	12	8.6	18	58	25	36	46	30	14	15
10	5.4	8.2	13	7.8	40	53	26	36	68	26	11	14
11	4.6	8.8	13	7.2	438	50	27	45	63	24	11	8.8
12	4.6	8.8	12	6.6	130	46	39	62	44	22	15	6.0
13	4.3	7.6	11	6.2	80	42	159	65	38	21	14	4.3
14	4.6	9.9	10	5.8	56	39	118	37	46	20	11	3.4
15	6.0	8.8	9.3	5.4	45	36	109	67	60	19	8.8	3.7
16	7.1	8.2	9.3	7.1	35	38	77	75	34	17	9.3	11
17	7.6	9.3	9.9	8.2	31	45	70	45	34	18	8.8	24
18	7.6	30	9.3	8.2	30	39	65	39	30	18	7.1	15
19	9.3	27	9.9	9.3	34	36	57	48	27	17	6.0	8.8
20	11	16	8.5	12	304	35	56	63	46	15	4.6	6.0
21	12	12	6.0	16	174	33	50	45	50	15	4.0	5.4
22	13	9.3	5.2	16	109	30	45	37	227	16	3.7	4.6
23	13	9.3	6.2	16	402	30	44	33	57	15	3.7	9.3
24	15	45	7.4	16	299	29	74	31	39	13	3.4	6.0
25	59	106	8.2	15	143	27	53	30	35	15	3.4	4.3
26	43	31	6.4	14	99	26	44	28	32	17	3.2	3.4
27	17	20	5.8	14	78	26	42	27	27	19	3.0	3.4
28	11	23	6.6	14	76	25	39	30	26	28	2.8	3.4
29	9.2	26	8.0	14	---	24	38	34	24	35	2.6	3.2
30	7.6	20	9.6	13	---	26	38	36	23	28	2.5	3.0
31	7.1	---	9.0	13	---	30	---	187	---	13	16	---
TOTAL	345.3	514.0	311.6	315.6	3364	1355	1530	1529	1910	940	261.1	275.3
MEAN	11.1	17.1	10.1	10.2	119	43.7	51.0	49.3	63.7	30.3	8.42	9.18
MAX	59	106	16	16	438	88	159	187	290	147	16	38
MIN	4.3	6.5	5.2	5.2	12	24	25	27	23	13	2.5	3.0
CFSM	.12	.19	.11	.11	1.33	.49	.57	.55	.71	.34	.09	.10
IN.	.14	.21	.13	.13	1.39	.56	.64	.63	.79	.39	.11	.11

CAL YR 1980 TOTAL 27436.6 MEAN 75.0 MAX 1460 MIN 4.3 CFSM .84 IN 11.39
WTR YR 1981 TOTAL 12630.9 MEAN 34.6 MAX 438 MIN 2.5 CFSM .39 IN 5.24

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD

LOCATION.--Lat 39°16'25", long 77°32'35", Frederick County, Hydrologic Unit 02070008, on left bank at downstream side of bridge on U.S. Highway 15 at Point of Rocks, 0.3 mi (0.5 km) downstream from Catoctin Creek (Virginia), 6 mi (9.7 km) upstream from Monocacy River, and at mile 159.5 (256.6 km).

DRAINAGE AREA.--9,651 mi^2 (24,996 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1895 to current year.

REVISED RECORDS.--WSP 192: 1895-1905. WSP 1432: 1899, 1901-2, 1904-5, 1912, 1914(M), 1915, 1917(M), 1918, 1919(M), 1920, 1921-23(M), 1924, 1925-28(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 200.63 ft (61.152 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1929, nonrecording gage at same site. Prior to Sept. 2, 1902, at datum about 0.45 ft (0.317 m) higher.

REMARKS.--Records good except those for January, which are fair. Low flow affected slightly since 1913 by Stony River Reservoir and since December 1950 by Savage River Reservoir. Low flow affected extensively at times by run-of-the-river hydroelectric plants. Gage-height telemeter at station.

AVERAGE DISCHARGE.--86 years, 9,355 ft^3/s (264.9 m^3/s), 13.16 in/yr (334 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft^3/s (13,600 m^3/s) Mar. 19, 1936, gage height, 41.03 ft (12.506 m), from rating curve extended above 300,000 ft^3/s (8,500 m^3/s) on the basis of adjustment of figure of peak flow at station near Washington for inflow and storage, and slope-area measurement of peak flow; minimum, 530 ft^3/s (15.0 m^3/s) Sept. 11, 12, 1966, gage height, 0.27 ft (0.082 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, reached a stage of 40.2 ft (12.25 m), from floodmarks, discharge, about 460,000 ft^3/s (13,000 m^3/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 41,900 ft^3/s (1,190 m^3/s) Apr. 14, gage height, 9.81 ft (2.990 m), no other peak above base of 35,000 ft^3/s (990 m^3/s); minimum, 1,080 ft^3/s (30.6 m^3/s) Aug. 29, gage height, 0.64 ft (0.195 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1550	1870	5040	2300	1800	11600	5910	6510	13700	3600	3020	2400
2	1560	1730	4750	2200	2300	10000	5960	6760	12200	3400	2700	2200
3	1470	1640	4360	1700	3800	9620	5590	7220	11000	3500	2400	1900
4	1540	1680	4140	1500	5000	8590	5430	10100	11100	5550	2280	1800
5	1490	1710	4220	1300	4500	7930	5490	9010	14600	8380	2190	2200
6	1570	1530	4830	1400	4500	7750	5110	7790	17500	8830	2160	2630
7	1500	1570	4500	1800	5000	7160	4770	6860	15900	8640	2300	4330
8	1390	1540	4210	1800	4340	6860	4540	6520	16600	8450	2390	4080
9	1620	1470	3870	1600	4200	6690	4310	5990	16400	7090	2270	3480
10	1450	1520	3800	1600	4200	6480	4200	5410	12800	6410	2100	3000
11	1430	1510	3550	1600	4450	6420	4080	5110	11400	5320	2220	2800
12	1410	1510	3670	1600	4610	6290	4310	5370	14300	4570	2290	2600
13	1360	1510	4060	1500	7900	6230	11200	11700	13900	4350	2190	2500
14	1290	1500	3790	1500	9670	5990	38500	11800	11200	3930	2000	2400
15	1310	1490	3480	1500	8170	5600	40400	9640	13100	3390	1770	2500
16	1300	1560	3400	1600	6790	5560	31300	8320	14400	3010	1750	2400
17	1310	1570	3310	1500	6090	5680	22500	7880	13500	2750	1690	2300
18	1370	1890	3090	1400	5820	5560	16900	8200	9290	2570	1530	2500
19	1340	2090	2960	1500	5410	5420	13700	7640	7360	2380	1380	3770
20	1330	2200	2640	1600	8000	5110	11700	7100	7350	2260	1450	4190
21	1330	2460	2530	1700	19300	4920	10200	8960	7730	2320	1450	3240
22	1410	3040	2320	1800	25300	4730	9240	17600	11000	2220	1410	2760
23	1330	3050	2100	1900	25800	4500	8690	15900	10500	2200	1310	2330
24	1270	3010	1830	1900	28200	4320	8250	12200	8510	2030	1280	2090
25	1730	5700	1600	1800	28600	4040	7810	9800	7220	2040	1230	1820
26	1980	12300	1300	1900	22700	3840	7470	8240	5870	2060	1230	1750
27	2240	11400	1700	2000	17500	3740	7140	6970	5010	2290	1230	1610
28	2770	8290	2300	2000	14100	3640	6640	6080	4650	3040	1180	1630
29	3020	6490	2200	2000	---	3650	6340	5820	4860	3680	1200	1520
30	2820	5570	2100	1700	---	6500	6650	8240	4090	3460	1300	1390
31	2350	---	2200	1600	---	6670	---	14700	---	3270	2300	---
TOTAL	50640	94400	99850	52800	288050	191080	324330	269620	327040	126790	57180	76120
MEAN	1634	3147	3221	1703	10290	6164	10810	8691	10900	4090	1845	2537
MAX	3020	12300	5040	2300	28600	11600	40400	17600	17500	8830	3020	4330
MIN	1270	1470	1300	1300	1800	3640	4080	5110	4090	2030	1180	1390
CFSM	.17	.33	.33	.18	1.07	.64	1.12	.90	1.13	.42	.19	.26
IN.	.20	.36	.38	.20	1.11	.74	1.25	1.04	1.26	.49	.22	.29

CAL YR 1980 TOTAL 3354390 MEAN 9165 MAX 63100 MIN 1270 CFSM .95 IN 12.93
WTR YR 1981 TOTAL 1957700 MEAN 5364 MAX 40400 MIN 1180 CFSM .56 IN 7.55

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1961 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1960 to current year.
SUSPENDED-SEDIMENT DISCHARGE: October 1960 to current year.

REMARKS.--Water temperatures are measured daily in field at time of sampling.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 33.5°C Aug. 24, 1964, July 19, 1977; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 2,350 mg/L Apr. 3, 1970; minimum daily mean, 1 mg/L on many days most years.
SEDIMENT LOADS: Maximum daily, 689,000 tons (625,000 tonnes) June 23, 1972; minimum daily, 2.0 tons (1.8 tonnes) on many days during 1964, 1966-69.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 27.0°C July 13, 14, 20, 21; minimum daily, 0.0°C Dec. 20, Jan. 3, 4.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 338 mg/L Apr. 15; minimum daily mean, 1 mg/L Oct. 13, Jan. 9-28.
SEDIMENT LOADS: Maximum daily, 36,900 tons (33,500 tonnes) Apr. 15; minimum daily, 3.7 tons (3.4 tonnes) Oct. 13.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE, AIR (DEG C)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
NOV											
24...	1130	2820	500	7.5	5.0	4.5	5	11.7	170	60	50
JAN											
28...	1330	2000	492	8.8	10.0	.4	8	14.7	180	60	54
JUN											
30...	1215	3970	262	8.1	28.5	24.0	2	7.8	110	37	34
SEP											
18...	1330	2370	405	8.1	--	20.0	5	--	150	41	44

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)
NOV											
24...	11	28	26	.9	3.8	110	71	32	.2	.0	284
JAN											
28...	11	31	27	1.0	2.5	120	79	28	.1	.2	319
JUN											
30...	6.3	7.0	12	.3	2.1	74	39	11	.1	4.4	180
SEP											
18...	10	22	24	.8	2.7	110	67	17	.1	4.4	256

DATE	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	SOLIDS, DISSOLVED (TONS PER AC-FT)	SOLIDS, DISSOLVED (TONS PER DAY)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, SUSPENDED RECOV. (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
NOV											
24...	262	.39	2160	.78	.120	210	190	20	10	5	5
JAN											
28...	278	.43	1720	1.7	.100	180	--	<10	30	20	10
JUN											
30...	148	.24	1930	1.1	.050	420	410	10	50	50	4
SEP											
18...	233	.35	1640	1.1	.110	400	390	10	40	30	10

< Actual value is known to be less than the value shown.

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	10.0	4.0	1.0	2.0	7.0	12.0	16.0	20.0	23.0	24.0	---
2	20.0	10.0	7.0	2.0	1.0	6.0	12.0	14.0	19.0	23.0	24.0	24.0
3	17.0	9.0	5.0	.0	---	5.0	12.0	15.0	19.0	23.0	25.0	23.0
4	17.0	9.0	3.0	.0	---	5.0	---	17.0	20.0	23.0	---	22.0
5	17.0	10.0	3.0	---	---	5.0	16.0	15.0	20.0	24.0	26.0	21.0
6	---	8.0	4.0	---	1.0	4.0	13.0	15.0	20.0	23.0	25.0	22.0
7	14.0	9.0	5.0	---	1.0	4.0	12.0	14.0	20.0	26.0	22.0	22.0
8	---	10.0	5.0	---	1.0	4.0	12.0	---	20.0	---	25.0	22.0
9	16.0	9.0	7.0	---	1.0	5.0	14.0	18.0	21.0	25.0	---	20.0
10	16.0	10.0	6.0	---	2.0	5.0	14.0	17.0	21.0	26.0	25.0	19.0
11	15.0	7.0	4.0	---	3.0	6.0	14.0	17.0	20.0	26.0	26.0	20.0
12	14.0	---	5.0	---	---	5.0	16.0	16.0	22.0	25.0	26.0	21.0
13	12.0	7.0	5.0	---	1.0	8.0	13.0	16.0	22.0	27.0	25.0	22.0
14	10.0	9.0	5.0	---	1.0	6.0	12.0	17.0	24.0	27.0	25.0	23.0
15	12.0	8.0	3.0	---	2.0	7.0	11.0	18.0	23.0	24.0	25.0	24.0
16	12.0	8.0	3.0	---	3.0	6.0	12.0	16.0	25.0	25.0	25.0	21.0
17	14.0	5.0	3.0	---	---	6.0	11.0	18.0	24.0	24.0	23.0	20.0
18	17.0	5.0	3.0	---	6.0	6.0	12.0	16.0	23.0	25.0	21.0	20.0
19	---	4.0	4.0	---	9.0	5.0	13.0	15.0	23.0	26.0	21.0	18.0
20	15.0	4.0	.0	---	6.0	5.0	13.0	15.0	25.0	27.0	21.0	18.0
21	13.0	6.0	2.0	---	5.0	5.0	13.0	15.0	26.0	27.0	21.0	17.0
22	17.0	5.0	2.0	---	5.0	6.0	12.0	16.0	25.0	26.0	---	18.0
23	12.0	5.0	1.0	---	6.0	5.0	14.0	16.0	23.0	25.0	20.0	16.0
24	13.0	5.0	4.0	---	6.0	6.0	14.0	19.0	23.0	23.0	22.0	14.0
25	12.0	5.0	1.0	---	6.0	7.0	12.0	18.0	23.0	23.0	21.0	15.0
26	8.0	4.0	1.0	1.0	5.0	7.0	14.0	20.0	23.0	23.0	22.0	17.0
27	7.0	4.0	---	1.0	5.0	8.0	13.0	20.0	21.0	25.0	22.0	21.0
28	11.0	5.0	---	1.0	6.0	8.0	15.0	21.0	22.0	---	24.0	18.0
29	9.0	4.0	---	1.0	---	8.0	16.0	21.0	22.0	25.0	24.0	16.0
30	9.0	5.0	---	1.0	---	9.0	14.0	23.0	24.0	23.0	24.0	17.0
31	10.0	---	1.0	1.0	---	9.0	---	23.0	---	24.0	24.0	---
MEAN	13.5	7.0	3.5	1.0	3.5	6.0	13.0	17.0	22.0	24.5	23.5	19.5

WTR YR 1981 MEAN 14.0 MAX 27.0 MIN .0

01638500 POTOMAC RIVER AT POINT OF ROCKS, MD--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	15	63	5	25	26	354	2	12	5	24	21	658
2	16	67	6	28	21	269	2	12	8	50	22	594
3	12	48	7	31	16	188	1	4.6	15	154	17	442
4	11	46	7	32	14	156	2	8.1	22	297	17	394
5	8	32	7	32	12	137	5	18	22	267	10	214
6	9	38	6	25	12	156	5	19	20	243	10	209
7	10	40	6	25	10	121	3	15	19	256	10	193
8	10	38	6	25	10	114	2	9.7	16	187	8	148
9	10	38	8	32	11	115	1	4.3	10	113	7	126
10	7	27	7	29	12	123	1	4.3	9	102	9	157
11	6	23	6	24	8	77	1	4.3	11	132	8	139
12	5	14	6	24	8	79	1	4.3	12	149	7	119
13	1	3.7	5	20	8	88	1	4.1	15	320	9	151
14	4	14	5	20	6	61	1	4.1	34	888	12	194
15	6	21	3	12	3	28	1	4.1	32	706	9	136
16	5	18	2	8.4	2	18	1	4.3	20	367	8	120
17	4	14	3	13	2	18	1	4.1	17	280	12	184
18	4	15	3	15	3	25	1	3.8	23	361	8	120
19	2	7.2	3	17	3	24	1	4.1	21	307	8	117
20	3	11	3	18	3	21	1	4.3	28	605	6	83
21	7	25	3	20	4	27	1	4.6	90	5090	7	93
22	3	11	4	33	4	25	1	4.9	192	13100	6	77
23	5	18	6	44	2	12	1	5.1	103	7170	5	61
24	3	10	10	81	3	15	1	5.1	95	7230	5	58
25	8	37	16	246	5	22	1	4.9	128	9880	5	55
26	8	32	58	1940	15	53	1	5.1	84	5150	5	52
27	8	36	68	2110	10	46	1	5.4	49	2320	5	50
28	11	82	41	935	7	43	1	5.4	18	685	4	39
29	13	106	24	491	5	30	3	16	---	---	6	59
30	12	91	28	421	5	28	12	55	---	---	17	298
31	8	51	---	---	4	24	16	69	---	---	16	288
TOTAL	---	1041.9	---	6781.4	---	2497	---	329.0	---	56433	---	5628

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	10	180	12	211	38	1410	15	146	25	204	15	97
2	13	209	15	274	36	1190	15	138	23	168	17	101
3	12	181	16	312	31	921	17	161	23	149	17	87
4	15	220	24	654	30	899	32	480	21	129	17	83
5	16	237	13	316	40	1580	46	1040	20	118	29	172
6	15	267	11	231	53	2500	37	882	20	117	34	241
7	10	129	12	222	40	1720	38	866	19	118	50	585
8	11	135	12	211	46	2060	38	867	18	116	34	375
9	13	151	11	178	53	2150	29	555	17	104	27	254
10	12	138	13	190	39	1350	25	433	17	96	23	186
11	10	110	16	221	35	1080	28	402	18	109	24	181
12	11	128	12	174	42	1620	26	321	19	117	24	168
13	60	2260	47	1480	44	1650	19	223	24	142	19	128
14	296	31100	43	1370	39	1180	18	191	28	151	17	110
15	338	36900	26	677	53	1470	16	146	23	110	13	88
16	195	16500	24	539	61	2370	15	122	19	90	12	78
17	112	6800	21	447	59	2150	15	113	17	78	15	93
18	55	2510	18	399	37	928	14	99	18	74	16	108
19	38	1410	19	392	32	636	15	98	16	60	28	285
20	32	1010	18	345	30	598	15	94	15	59	22	249
21	23	633	18	434	34	710	15	96	17	67	17	149
22	21	574	46	2190	50	1490	16	98	17	65	16	119
23	19	446	39	1670	50	1420	17	103	16	57	10	63
24	19	423	33	1090	34	781	15	84	14	48	9	51
25	15	316	24	635	34	563	13	73	16	53	10	49
26	15	303	19	423	26	412	14	79	16	53	6	28
27	13	251	16	301	23	311	16	101	15	50	3	13
28	11	197	15	246	20	251	24	200	14	45	3	13
29	11	188	18	283	21	276	37	374	12	39	2	8.2
30	12	215	30	667	18	199	35	333	12	42	2	7.5
31	---	---	41	1630	---	---	---	---	13	81	---	---
TOTAL	---	103989	---	18412	---	36572	---	8918	---	2908	---	4169.7

TOTAL LOAD FOR YEAR: 247719.0 TONS.

01643700 GOOSE CREEK NEAR MIDDLEBURG, VA

LOCATION.--Lat 38°59'11", long 77°47'49", Loudoun County, Hydrologic Unit 02070008, on right bank 250 ft (76 m) upstream from bridge on State Highway 611, 2.0 mi (3.2 km) downstream from Panther Skin Creek, and 3.4 mi (5.5 km) northwest of Middleburg.

DRAINAGE AREA.--123 mi² (319 km²).

PERIOD OF RECORD.--October 1965 to September 1967, July 1969 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 329.80 ft (100.523 m) National Geodetic Vertical Datum of 1929. October 1965 to September 1967 at site 300 ft (91 m) downstream at datum 0.73 ft (0.223 m) lower.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--14 years, 138 ft³/s (3.908 m³/s), 15.24 in/yr (387 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft³/s (544 m³/s) June 22, 1972, gage height, 27.46 ft (8.370 m), from floodmarks, from rating curve extended above 2,900 ft³/s (82 m³/s) on basis of slope-area measurements at gage heights 14.44 ft (4.401 m) and 27.46 ft (8.370 m); minimum, 0.10 ft³/s (0.003 m³/s) Sept. 1-4, 8-12, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 924 ft³/s (26.2 m³/s) Aug. 31, gage height, 5.68 ft (1.731 m), no peak above base of 1,350 ft³/s (38 m³/s); minimum, 1.9 ft³/s (0.054 m³/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	5.4	23	12	10	96	28	48	58	11	9.4	48
2	4.2	6.2	19	11	272	82	33	112	69	15	7.7	25
3	3.8	6.2	17	10	158	76	27	73	66	16	6.0	19
4	4.6	6.6	16	8.5	119	68	23	58	69	84	5.7	21
5	5.8	8.2	14	6.5	67	86	23	50	58	64	6.0	36
6	5.4	8.2	14	4.8	37	94	28	45	51	35	7.1	29
7	4.6	7.6	13	5.6	26	75	23	44	50	26	11	23
8	4.2	7.0	13	6.5	23	65	21	37	38	18	15	21
9	3.8	7.6	13	5.0	20	64	22	31	33	15	12	41
10	3.8	8.8	14	5.2	17	58	29	31	45	11	8.3	25
11	4.2	11	14	4.7	392	56	29	68	51	9.4	10	15
12	4.2	8.8	12	4.1	170	52	42	141	33	7.7	110	11
13	4.2	6.6	12	3.6	100	50	94	85	28	6.0	52	8.3
14	5.4	6.2	12	3.7	78	44	86	71	80	5.4	23	6.0
15	5.8	6.2	11	4.2	62	41	97	61	53	4.8	16	6.6
16	6.2	6.6	11	5.8	48	45	75	58	37	4.3	16	74
17	7.0	9.4	11	8.2	45	53	71	47	28	4.3	11	53
18	9.4	41	10	8.8	44	48	66	41	23	4.6	7.7	32
19	14	35	10	8.8	50	43	52	66	21	4.3	6.0	24
20	20	21	9.0	11	413	45	51	90	41	4.0	5.4	18
21	22	15	5.8	15	265	46	43	57	49	9.4	4.8	15
22	22	12	5.4	16	171	39	39	44	89	6.0	4.3	13
23	19	11	5.4	16	324	34	40	37	43	4.8	4.0	11
24	19	38	8.2	16	293	30	48	33	32	4.3	3.7	8.3
25	58	119	8.0	13	182	27	39	29	25	4.6	3.1	5.1
26	58	44	6.5	14	138	29	34	26	22	17	2.8	4.6
27	19	31	5.8	14	114	28	39	25	18	136	2.6	4.3
28	12	38	6.2	13	104	27	38	50	15	54	2.4	3.7
29	9.4	39	8.8	11	---	26	34	128	13	75	2.2	3.4
30	7.6	29	13	11	---	28	32	59	11	25	49	3.1
31	5.8	---	11	10	---	35	---	89	---	14	238	---
TOTAL	376.2	599.6	352.1	287.0	3742	1590	1306	1834	1249	699.9	662.2	607.4
MEAN	12.1	20.0	11.4	9.26	134	51.3	43.5	59.2	41.6	22.6	21.4	20.2
MAX	58	119	23	16	413	96	97	141	89	136	238	74
MIN	3.8	5.4	5.4	3.6	10	26	21	25	11	4.0	2.2	3.1
CFSM	.10	.16	.09	.08	1.09	.42	.35	.48	.34	.18	.17	.16
IN.	.11	.18	.11	.09	1.13	.48	.39	.55	.38	.21	.20	.18

CAL YR 1980 TOTAL 41844.03 MEAN 114 MAX 1870 MIN .55 CFSM .93 IN 12.66
WTR YR 1981 TOTAL 13305.40 MEAN 36.5 MAX 413 MIN 2.2 CFSM .30 IN 4.02

01644000 GOOSE CREEK NEAR LEESBURG, VA

LOCATION.--Lat 39°01'10", long 77°34'40", Loudoun County, Hydrologic Unit 02070008, on left bank 400 ft (120 m) upstream from bridge on State Highway 621 at Evergreen Mills, 1.4 mi (2.3 km) downstream from Little River, 6.7 mi (10.8 km) south of Leesburg, and 10.9 mi (17.5 km) upstream from mouth.

DRAINAGE AREA.--332 mi² (860 km²).

PERIOD OF RECORD.--July 1909 to April 1911, September 1911 to December 1912, January 1930 to current year.

REVISED RECORDS.--WSP 851: 1935-37. WSP 951: 1933(M), 1937. WSP 1302: 1934-35(M). WSP 2103: Drainage area. WDR VA-72-1: 1937(M), 1943(M), 1951(M), 1956(M). WDR VA-79-1: 1978.

GAGE.--Water-stage recorder. Datum of gage is 248.93 ft (75.874 m) National Geodetic Vertical Datum of 1929. July 12, 1909, to Dec. 31, 1912, nonrecording gage at site 1,000 ft (300 m) downstream at different datum. Jan. 21, 1930, to Nov. 28, 1938, nonrecording gage at site 400 ft (120 m) downstream at datum 4.20 ft (1.280 m) lower than present datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years (water years 1910, 1912, 1931-81), 313 ft³/s (8.864 m³/s), 12.80 in/yr (325 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,100 ft³/s (2,210 m³/s) June 22, 1972, gage height, 30.59 ft (9.324 m), from high-water mark in gage house, from rating curve extended above 11,000 ft³/s (310 m³/s) on basis of slope-area measurement of peak flow; minimum daily, 0.40 ft³/s (0.011 m³/s) Sept. 27-30, 1941.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1889 reached a stage of about 29 ft (8.8 m), discharge, about 45,000 ft³/s (1,300 m³/s), site and datum in use 1930-38, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,950 ft³/s (112 m³/s) Feb. 11, gage height, 6.56 ft (1.999 m), no peak above base of 4,000 ft³/s (110 m³/s); minimum, 3.7 ft³/s (0.10 m³/s) Aug. 28, gage height, 0.84 ft (0.256 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	16	71	49	28	258	91	216	189	41	37	75
2	9.8	14	61	48	403	219	101	410	181	42	29	56
3	12	16	54	42	422	197	97	264	204	55	24	58
4	13	17	51	36	154	167	77	198	328	268	22	76
5	13	20	46	29	100	206	73	167	236	362	20	64
6	12	19	45	23	78	261	90	148	190	173	20	51
7	14	19	45	22	64	203	83	142	171	122	24	54
8	14	19	45	22	57	173	68	124	141	90	32	74
9	14	19	47	20	56	156	68	107	113	67	34	58
10	13	21	49	20	48	148	78	101	118	54	28	41
11	13	21	49	18	1630	142	87	130	153	46	21	32
12	12	20	48	16	626	135	120	293	113	38	119	28
13	12	21	46	12	318	125	301	222	142	34	213	26
14	11	20	46	12	209	118	313	165	335	31	73	131
15	12	20	45	13	164	106	313	144	220	27	46	212
16	13	22	45	15	145	111	241	143	142	24	50	160
17	13	27	44	18	140	130	213	125	105	23	36	100
18	14	114	43	20	132	115	209	107	81	21	26	69
19	17	166	45	21	140	106	175	128	69	19	19	58
20	21	74	36	24	964	102	159	209	180	19	16	51
21	26	47	36	32	652	97	150	165	193	20	14	58
22	31	37	29	36	455	90	127	126	208	25	12	55
23	36	31	28	44	1020	86	124	104	161	26	9.9	39
24	46	117	28	47	983	86	155	88	107	18	8.6	32
25	172	333	29	44	527	79	143	81	84	18	7.1	28
26	220	166	30	42	394	75	115	73	69	21	5.5	25
27	88	98	30	44	318	73	107	67	59	221	5.5	25
28	25	97	31	45	272	71	121	81	51	176	4.9	25
29	18	113	36	43	---	68	121	245	45	405	577	24
30	16	91	46	35	---	73	107	164	41	109	689	25
31	13	---	50	31	---	91	---	199	---	53	142	---
TOTAL	953.6	1815	1334	923	10499	4067	4227	4936	4429	2648	2364.5	1810
MEAN	30.8	60.5	43.0	29.8	375	131	141	159	148	85.4	76.3	60.3
MAX	220	333	71	49	1630	261	313	410	335	405	689	212
MIN	9.8	14	28	12	28	68	68	67	41	18	4.9	24
CFSM	.09	.18	.13	.09	1.13	.40	.43	.48	.45	.26	.23	.18
IN.	.11	.20	.15	.10	1.18	.46	.47	.55	.50	.30	.26	.20

CAL YR 1980 TOTAL 100299.6 MEAN 274 MAX 3580 MIN 9.8 CFSM .83 IN 11.24
WTR YR 1981 TOTAL 40006.1 MEAN 110 MAX 1630 MIN 4.9 CFSM .33 IN 4.48

01644291 STAVE RUN NEAR RESTON, VA

LOCATION.--Lat 38°56'56", long 77°22'16", Fairfax County, Hydrologic Unit 02070008, on left bank 450 ft (137 m) downstream from the western boundary line of the U.S. Geological Survey National Center property, 0.31 mi (0.50 km) upstream from mouth, and 1.4 mi (2.3 km) southwest of Sunset Hills in Reston.

DRAINAGE AREA.--0.08 mi² (0.21 km²).

PERIOD OF RECORD.--October 1971 to current year.

REVISED RECORDS.--WDR VA-79-1: 1974.

GAGE.--Water-stage recorder, trapezoidal flume, and crest-stage gage. Datum of gage is 367.25 ft (111.738 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those above 2.0 ft³/s (0.057 m³/s), which are poor.

AVERAGE DISCHARGE.--10 years, 0.12 ft³/s (0.003 m³/s), 20.37 in/yr (517 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 281 ft³/s (7.96 m³/s) Aug. 13, 1978, gage height, 3.43 ft (1.045 m), from rating curve extended above 67 ft³/s (1.90 m³/s) on basis of flow-over-embankment measurement at gage height 2.84 ft (0.866 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 45 ft³/s (1.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 1	1025	54	1.53	1.89	0.576
June 13	2000	*80	2.27	2.16	.658
June 20	1450	56	1.59	1.91	0.582
Aug. 15	2040	52	1.47	1.86	.567

No flow many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	.09	1.7	.13	.15	.00	.02
2	.01	.00	.00	.05	.72	.00	.01	.09	.44	.05	.00	.01
3	.04	.00	.02	.00	.16	.00	.00	.02	.01	.04	.00	.01
4	.00	.17	.00	.00	.00	.03	.00	.00	.00	1.1	.00	.02
5	.00	.00	.00	.00	.00	.35	.10	.00	.00	.00	.00	.00
6	.00	.00	.00	.00	.03	.10	.00	.00	.00	.00	.06	.00
7	.00	.00	.00	.02	.02	.02	.00	.00	.00	.00	.02	.00
8	.00	.00	.00	.00	.10	.00	.00	.00	.00	.00	.02	.00
9	.00	.08	.07	.00	.05	.00	.22	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.02	.00	.00	.02	.29	.00	.00	.00
11	.00	.00	.00	.00	.86	.00	.05	.60	.04	.00	.19	.00
12	.00	.00	.00	.00	.16	.00	.19	.03	.00	.00	.35	.00
13	.00	.00	.00	.00	.05	.00	.23	.00	.70	.00	.01	.00
14	.00	.00	.00	.00	.02	.00	.09	.00	.20	.00	.00	.00
15	.00	.00	.00	.00	.01	.00	.00	.04	.03	.00	.52	.29
16	.00	.01	.00	.04	.00	.10	.00	.02	.00	.00	.05	.24
17	.00	.60	.00	.00	.00	.00	.02	.00	.00	.00	.01	.03
18	.14	.13	.00	.00	.00	.00	.00	.03	.00	.00	.00	.00
19	.00	.00	.00	.00	.17	.00	.00	.28	.00	.00	.00	.00
20	.00	.00	.00	.00	.31	.00	.00	.02	.92	.12	.00	.00
21	.00	.00	.00	.11	.22	.00	.00	.00	.23	.00	.00	.00
22	.00	.00	.00	.15	.03	.00	.00	.00	.12	.00	.00	.14
23	.00	.00	.09	.02	.98	.00	.05	.00	.02	.00	.00	.01
24	.00	1.1	.30	.01	.05	.00	.05	.00	.00	.03	.00	.00
25	.89	.01	.05	.00	.00	.00	.00	.00	.00	.11	.00	.00
26	.00	.00	.00	.00	.00	.00	.00	.00	.01	.08	.00	.00
27	.00	.13	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00
28	.00	.07	.00	.00	.00	.00	.24	.30	.00	.53	.00	.00
29	.00	.00	.00	.00	---	.00	.05	.34	.00	.04	.00	.00
30	.00	.00	.00	.00	---	.10	.02	.31	.00	.00	.20	.00
31	.00	---	.00	.00	---	.00	---	.12	---	.00	.40	---
TOTAL	1.08	2.30	.53	.40	3.96	.70	1.41	3.92	3.14	2.27	1.83	.77
MEAN	.035	.077	.017	.013	.14	.023	.047	.13	.10	.073	.059	.026
MAX	.89	1.1	.30	.15	.98	.35	.24	1.7	.92	1.1	.52	.29
MIN	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
CFSM	.44	.96	.21	.16	1.75	.29	.59	1.63	1.25	.91	.74	.33
IN.	.50	1.06	.24	.18	1.82	.32	.65	1.80	1.44	1.04	.84	.35

CAL YR 1980 TOTAL 26.44 MEAN .072 MAX 1.2 MIN .00 CFSM .90 IN 12.14
WTR YR 1981 TOTAL 22.31 MEAN .061 MAX 1.7 MIN .00 CFSM .76 IN 10.25

01646000 DIFFICULT RUN NEAR GREAT FALLS, VA

LOCATION.--Lat 38°58'33", long 77°14'46", Fairfax County, Hydrologic Unit 02070008, on right bank 250 ft (76 m) downstream from bridge on State Highway 193, 300 ft (91 m) downstream from Rocky Run, 0.7 mi (1.1 km) upstream from mouth, and 1.5 mi (2.4 km) southeast of Great Falls.

DRAINAGE AREA.--57.9 mi^2 (150.0 km^2).

PERIOD OF RECORD.--October 1934 to current year. Monthly discharge only October to December 1934, published in WSP 1302.

REVISED RECORDS.--WSP 951: 1936(M), 1937-38, 1939-40(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 151.30 ft (46.116 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--47 years, 59.9 ft^3/s (1.696 m^3/s), 14.05 in/yr (357 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,200 ft^3/s (912 m^3/s) June 22, 1972, gage height, 21.40 ft (6.523 m), from floodmarks, from rating curve extended above 1,600 ft^3/s (45 m^3/s) on basis of contracted-opening measurement at gage height 13.18 ft (4.017 m) and slope-area measurement at gage height 21.40 ft (6.523 m); minimum, 0.05 ft^3/s (0.001 m^3/s) Sept. 9, 10, 1966, gage height, 1.65 ft (0.503 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,200 ft^3/s (34.0 m^3/s) at 1800 hours July 4, gage height, 7.80 ft (2.377 m), no other peak above base of 1,000 ft^3/s (28 m^3/s); minimum, 6.4 ft^3/s (0.18 m^3/s) Sept. 25, gage height, 2.52 ft (0.768 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	14	27	20	16	49	38	281	71	32	11	28
2	13	16	26	21	108	46	59	148	259	38	10	13
3	21	14	25	18	50	41	36	54	106	36	9.5	12
4	22	20	23	17	28	30	27	41	93	517	11	11
5	20	25	31	16	21	69	30	35	81	82	10	13
6	18	18	32	18	20	55	46	33	64	41	10	11
7	18	17	30	20	19	39	27	31	60	30	14	11
8	18	15	30	18	30	35	25	28	55	24	11	11
9	18	15	35	16	36	33	43	27	54	21	10	12
10	17	19	38	15	22	32	45	28	74	18	9.0	11
11	11	15	31	14	220	32	38	108	35	17	54	9.3
12	9.8	15	29	14	108	30	40	74	22	15	401	8.8
13	9.5	15	21	13	54	29	102	46	43	14	46	8.0
14	9.5	15	20	15	29	28	60	40	134	14	21	8.0
15	10	17	20	17	30	27	49	50	34	13	22	16
16	11	20	21	19	29	35	37	49	25	12	52	70
17	11	28	20	18	29	39	38	30	20	12	18	21
18	11	136	19	17	30	30	38	28	18	11	14	16
19	22	34	21	18	32	28	30	57	17	10	12	12
20	12	22	20	21	91	28	31	55	115	11	12	9.8
21	11	20	19	26	88	27	28	34	59	18	12	10
22	11	19	18	24	54	25	27	29	112	11	12	14
23	11	17	21	23	337	25	28	25	39	9.5	11	37
24	11	183	29	21	187	25	36	23	24	11	9.8	11
25	184	140	33	20	80	24	27	22	21	22	9.3	8.0
26	50	41	18	20	62	24	25	21	21	17	8.8	8.5
27	20	34	18	21	54	25	24	20	17	17	8.5	8.3
28	17	59	19	20	50	24	28	77	15	57	7.8	7.6
29	16	38	21	18	---	23	40	71	14	91	7.4	7.4
30	15	30	22	17	---	32	31	104	14	18	36	7.2
31	15	---	20	17	---	39	---	110	---	13	90	---
TOTAL	656.8	1071	757	572	1914	1028	1133	1779	1716	1252.5	970.1	430.9
MEAN	21.2	35.7	24.4	18.5	68.4	33.2	37.8	57.4	57.2	40.4	31.3	14.4
MAX	184	183	38	26	337	69	102	281	259	517	401	70
MIN	9.5	14	18	13	16	23	24	20	14	9.5	7.4	7.2
CFSM	.37	.62	.42	.32	1.18	.57	.65	.99	.99	.70	.54	.25
IN.	.42	.69	.49	.37	1.23	.66	.73	1.14	1.10	.80	.62	.28

CAL YR 1980 TOTAL 21582.9 MEAN 59.0 MAX 528 MIN 7.6 CFSM 1.02 IN 13.87
WTR YR 1981 TOTAL 13280.3 MEAN 36.4 MAX 517 MIN 7.2 CFSM .63 IN 8.53

01646500 POTOMAC RIVER NEAR WASHINGTON, DC

LOCATION.--Lat 38°56'58", long 77°07'40", Montgomery County, Md., Hydrologic Unit 02070008, on left bank just above Little Falls Dam, 1 mi (1.6 km) upstream from District of Columbia boundary line, 1.2 mi (1.9 km) upstream from Chain Bridge, 1.8 mi (2.9 km) east of Langley, Fairfax County, Va., and at mile 117.4 (188.9 km).

DRAINAGE AREA.--11,560 mi² (29,940 km²).

PERIOD OF RECORD.--March 1930 to current year.

REVISED RECORDS.--WSP 726: Drainage area. WDR MD-DE-75-1: 1973-74(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 37.95 ft (11.567 m) National Geodetic Vertical Datum of 1929. Prior to June 7, 1930, nonrecording gage, and June 7, 1930, to Jan. 22, 1965, water-stage recorder, at site 1 mi (1.6 km) upstream on right bank at same datum.

REMARKS.--Records good except those for January, which are fair. Diversions at Great Falls through aqueducts, and since June 1959, from gage pool at Little Falls Dam, for municipal supply of Washington, D. C.; since October 1958, at Rockville Filtration Plant, for municipal supply of city of Rockville; since April 1961, at Potomac Filtration Plant, for water supply of Washington Suburban Sanitary District; since October 1961, at Fairfax Water Treatment Plant for water supply of city of Fairfax (from Goose Creek); and since April 1964, at Violets Lock to Chesapeake and Ohio Canal. Low flow affected slightly by Stony River Reservoir and since December 1950 by Savage River Reservoir. Low flow affected extensively at times by run-of-the-river hydroelectric plants. Gage-height telemeter at station.

AVERAGE DISCHARGE.--51 years, 11,400 ft³/s (322.8 m³/s), 13.40 in/yr (340 mm/yr), adjusted for diversions.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 484,000 ft³/s (13,700 m³/s) Mar. 19, 1936, gage height, 28.1 ft (8.56 m), site then in use; minimum daily observed at gaging station, 121 ft³/s (3.43 m³/s) Sept. 9, 1966, does not include diversion of 489 ft³/s (13.8 m³/s) for municipal use; minimum daily (adjusted), 601 ft³/s (17.0 m³/s) Sept. 10, 1966, includes diversion of 449 ft³/s (12.7 m³/s) for municipal use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 2, 1889, was of approximately the same magnitude as that of Mar. 19, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 45,000 ft³/s (1,200 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 24	2400	47500	1350	6.57	2.003	Apr. 15	1015	*55000	1560	6.95	2.118

Minimum daily discharge, 844 ft³/s (23.9 m³/s) Aug. 29, does not include diversion for municipal use; minimum daily (adjusted), 1,460 ft³/s (41.3 m³/s) Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1450	2790	6230	2450	1650	15900	7380	8780	16700	4120	3450	2290
2	1440	2430	5520	2420	2400	13400	6790	10600	15000	3860	3040	2370
3	1530	2190	4980	2110	5310	11900	6710	9000	13600	3800	2760	2100
4	1470	2190	4590	1700	5130	11300	6150	10700	13200	5980	2450	1900
5	1470	2200	4440	1200	5420	10400	6090	11600	14600	8130	2150	1810
6	1470	2010	4540	1300	5290	10200	6150	10000	19000	11400	2180	2360
7	1480	1800	5070	1700	5980	9460	6240	8660	19100	9550	2190	3290
8	1510	1710	4830	1700	5880	8730	5680	7880	16900	9660	2280	4980
9	1390	1740	4450	1400	4540	8420	5260	7280	19100	8570	2340	4860
10	1350	1610	4190	1500	4120	8250	5140	6530	16400	7240	2300	4070
11	1370	1490	4070	1500	5710	7980	5000	6270	13400	6470	2090	3250
12	1320	1500	3890	1500	12800	7780	5010	6520	12700	5290	3520	3030
13	1330	1570	3930	1400	9980	7520	7610	8710	16900	4500	2750	2900
14	1280	1650	4310	1350	10500	7120	34800	14700	15300	4250	2380	2570
15	1280	1700	4010	1400	11200	6860	53400	12600	17800	3780	2130	2370
16	1220	1690	3780	1400	9200	6470	42800	11000	15400	3270	2070	2570
17	1210	1790	3590	1400	7810	6600	30600	9450	16700	2880	1790	2300
18	1260	2420	3550	1300	7120	6630	23000	9290	12800	2700	1590	2160
19	1370	2460	3300	1450	6640	6570	17900	9550	9370	2530	1470	2220
20	1350	2710	3130	1570	8250	6250	15100	9130	8100	2330	1250	3470
21	1240	2750	2630	1630	22700	5850	13100	8350	9740	2380	1240	4050
22	1250	2810	2420	1700	33000	5660	11600	14300	10600	2300	1250	3190
23	1330	3230	2440	1880	33500	5420	10600	19400	15200	2460	1280	2700
24	1290	3990	2540	1910	43300	5100	10100	15500	11500	2360	1120	2350
25	2190	5460	1650	1870	41200	4880	9640	12200	9330	2280	1030	2050
26	2660	10900	1280	1940	31000	4590	9050	10100	7600	2180	980	1890
27	2970	14500	1650	2000	23800	4330	8680	8470	6170	2220	939	1740
28	2970	11900	2340	2070	19000	4300	8280	7230	5300	2540	897	1470
29	2980	8960	2280	2080	---	4060	7760	6740	4940	4240	844	1500
30	3190	7220	2140	1700	---	4290	7430	7290	4880	4510	965	1410
31	3080	---	2310	1600	---	7680	---	12200	---	3930	1390	---
TOTAL	52700	111370	110080	52130	382430	233900	393050	310030	387330	141710	58115	79210
MEAN	1700	3712	3551	1682	13660	7545	13100	10000	12910	4571	1875	2640
MAX	3190	14500	6230	2450	43300	15900	53400	19400	19100	11400	3520	4980
MIN	1210	1490	1280	1200	1650	4060	5000	6270	4880	2180	844	1410
(*)	512	488	487	521	531	498	508	523	573	590	555	526
MEAN‡	2212	4200	4038	2203	14190	8043	13610	10520	13480	5161	2430	3166
CFSM‡	.19	.36	.35	.19	1.23	.70	1.18	.91	1.17	.45	.21	.27
IN‡	.22	.40	.40	.22	1.28	.81	1.32	1.05	1.31	.52	.24	.30

CAL YR 1980 TOTAL 4038310 MEAN 11030 MAX 68100 MIN 1210 MEAN‡ 11560 CFSM‡ 1.00 IN‡ 13.61
WTR YR 1981 TOTAL 2312055 MEAN 6334 MAX 53400 MIN 844 MEAN‡ 6905 CFSM‡ .60 IN‡ 8.11

* Diversion in cfs, for municipal supply of Washington, D.C., Washington Suburban Sanitary District, city of Rockville, city of Fairfax (from Goose Creek), and the Chesapeake and Ohio Canal (insignificant diversion to canal during current water year); records furnished by Corps of Engineers, Washington Suburban Sanitary Commission, city of Rockville, and city of Fairfax.

‡ Adjusted for diversion.

01652500 FOURMILE RUN AT ALEXANDRIA, VA.

LOCATION.--Lat 38°50'35", long 77°05'09", Arlington County, Hydrologic Unit 02070010, on left bank at upstream side of bridge on Shirlington Road, at Arlington County-Alexandria City line, 0.1 mi (0.2 km) upstream from Interstate Highway 95, and 2.5 mi (4.0 km) upstream from mouth.

DRAINAGE AREA.--13.8 mi² (35.7 km²).

PERIOD OF RECORD.--May 1951 to September 1969, October 1969 to September 1973 (annual maximum only), October 1973 to September 1975, October 1975 to September 1977 (annual maximum only), July 1979 to current year.

REVISED RECORDS.--WSP 1622: 1954-55.

GAGE.--Water-stage recorder. Datum of gage is 28.57 ft (8.708 m) National Geodetic Vertical Datum of 1929. May 4, 1951, to Sept. 30, 1969, water-stage recorder, and Oct. 1, 1969, to Sept. 27, 1973, nonrecording gage, at site 0.4 mi (0.6 km) downstream at datum 6.02 ft (1.835 m) lower. Sept. 28, 1973, to Sept. 26, 1975, water-stage recorder, and Sept. 27, 1975, to Sept. 30, 1977, nonrecording gage, at present site and datum.

REMARKS.--Records fair except those for period of no gage-height record, Dec. 11 to Jan. 19, and those above 400 ft³/s (11.3 m³/s), which are poor. Water-quality records have been collected at this location and are published in reports of the Geological Survey. Recording rain gage located at station.

AVERAGE DISCHARGE.--22 years (water years 1951-69, 1974-75, 1980-81), 15.2 ft³/s (0.430 m³/s), 14.96 in/yr (380 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,600 ft³/s (413 m³/s) July 22, 1969, gage height, 11.6 ft (3.536 m), site and datum then in use, from rating curve extended above 670 ft³/s (19.0 m³/s) on basis of slope-area measurement of peak flow; maximum gage height, 17.8 ft (5.43 m), from floodmarks, June 21, 1972; minimum discharge, 0.6 ft³/s (0.017 m³/s) Sept. 8, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft³/s (51 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 25	Unknown	1850	52.4	6.60	2.012	July 28	2030	2090	59.2	6.96	2.121
June 13	1930	1840	52.1	6.59	2.009	Aug. 11	2100	1940	54.9	6.73	2.051
July 4	0815	*2800	79.3	7.96	2.426						

Minimum daily, 1.3 ft³/s (0.04 m³/s) Sept. 10-13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	3.0	4.5	3.0	3.8	4.2	10	149	21	23	4.0	2.2
2	5.0	2.9	18	3.5	77	3.9	7.0	18	68	13	3.7	1.6
3	9.0	3.3	5.0	5.0	4.4	3.8	4.0	12	9.1	48	4.8	1.5
4	6.0	14	3.7	4.0	3.2	5.3	7.0	12	9.4	364	4.3	1.5
5	5.0	4.3	3.7	3.0	3.3	27	9.0	9.5	8.8	34	3.7	1.5
6	4.5	4.0	3.9	2.5	3.1	6.7	15	7.6	8.4	23	3.5	1.4
7	4.0	3.5	3.7	3.0	3.0	4.5	5.8	6.4	8.4	17	8.0	1.5
8	3.5	3.5	3.8	2.5	16	4.5	5.0	5.2	8.1	9.1	4.0	5.0
9	3.5	7.0	16	2.5	9.0	4.4	32	5.2	9.3	4.0	3.5	1.6
10	3.5	4.2	4.8	2.0	6.0	4.6	5.5	17	49	4.4	15	1.3
11	3.5	3.5	3.5	2.0	96	4.8	6.6	87	9.5	4.8	50	1.3
12	3.8	3.7	3.0	2.0	7.6	4.6	22	48	8.9	5.1	300	1.3
13	3.8	3.8	2.5	3.0	4.6	4.5	24	11	130	29	10	1.3
14	4.0	3.9	2.5	3.5	4.3	3.9	18	4.8	29	6.1	5.0	1.4
15	5.0	3.9	2.5	4.0	3.8	4.1	9.3	95	5.5	5.9	8.0	82
16	4.0	4.6	2.5	3.5	3.8	15	40	8.9	4.8	5.9	15	65
17	4.0	75	3.0	3.0	3.8	4.7	90	6.1	4.5	6.4	6.0	5.0
18	4.0	22	2.5	3.0	3.8	4.2	8.1	9.2	4.4	7.0	5.0	5.0
19	15	5.1	2.5	4.0	5.0	4.2	5.5	30	4.3	7.4	4.0	2.1
20	6.0	4.8	2.5	5.3	30	4.0	9.5	8.6	18	62	3.5	1.9
21	5.0	4.5	2.5	9.3	14	3.8	4.0	5.7	10	29	3.0	2.0
22	4.5	4.2	3.0	5.4	7.7	3.7	4.0	5.7	7.5	7.0	3.0	21
23	4.5	4.3	5.0	5.0	89	3.8	14	5.7	5.7	6.5	3.0	3.8
24	5.0	94	9.0	5.0	11	3.7	6.9	5.7	5.6	8.6	2.5	2.1
25	100	7.6	15	4.9	6.4	3.5	4.0	5.7	26	123	2.5	2.1
26	20	5.2	6.0	4.9	4.8	3.0	4.0	5.9	9.1	11	2.5	2.1
27	6.0	18	4.0	5.0	4.6	3.1	4.0	6.0	5.8	12	2.3	2.7
28	3.6	17	3.0	4.4	4.4	3.2	61	24	6.4	146	2.5	2.9
29	3.3	5.2	4.0	3.7	---	3.5	9.1	31	6.7	9.0	3.3	2.5
30	3.2	4.8	4.0	3.3	---	25	12	9.9	5.9	4.6	83	2.5
31	2.9	---	3.5	3.7	---	8.5	---	11	---	3.8	57	---
TOTAL	258.3	344.8	153.1	118.9	433.4	187.7	456.3	666.8	507.1	1039.6	625.6	229.1
MEAN	8.33	11.5	4.94	3.84	15.5	6.05	15.2	21.5	16.9	33.5	20.2	7.64
MAX	100	94	18	9.3	96	27	90	149	130	364	300	82
MIN	2.9	2.9	2.5	2.0	3.0	3.0	4.0	4.8	4.3	3.8	2.3	1.3
CFSM	.60	.83	.36	.28	1.12	.44	1.10	1.56	1.23	2.43	1.46	.55
IN.	.70	.93	.41	.32	1.17	.51	1.23	1.80	1.37	2.80	1.69	.62

CAL YR 1980 TOTAL 5642.3 MEAN 15.4 MAX 260 MIN 2.0 CFSM 1.12 IN 15.21
WTR YR 1981 TOTAL 5020.7 MEAN 13.8 MAX 364 MIN 1.3 CFSM 1.00 IN 13.53

01654000 ACCOTINK CREEK NEAR ANNANDALE, VA

LOCATION.--Lat 38°48'46", long 77°13'43", Fairfax County, Hydrologic Unit 02070010, on left bank 800 ft (244 m) upstream from bridge on State Highway 620, 0.2 mi (0.3 km) upstream from Long Branch, and 2.3 mi (3.7 km) southwest of Annandale.

DRAINAGE AREA.--23.5 mi² (60.9 km²).

PERIOD OF RECORD.--March 1947 to current year (fragmentary prior to October 1947).

REVISED RECORDS.--WSP 1502: 1952. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 191.24 ft (58.290 m) National Geodetic Vertical Datum of 1929 (levels by Stone and Webster Engineering Corp.). Prior to May 12, 1949, nonrecording gage at site 800 ft (244 m) downstream at datum 0.33 ft (0.101 m) lower. May 12, 1949, to June 4, 1970, water-stage recorder at site 800 ft (244 m) downstream at datum 0.33 ft (0.101 m) lower.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--34 years, 27.8 ft³/s (0.787 m³/s), 16.06 in/yr (408 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) June 22, 1972, gage height, 15.96 ft (4.865 m), from high-water mark in gage house, from rating curve extended above 6,600 ft³/s (190 m³/s) on basis of contracted-opening and flow-over-road measurement of peak flow; minimum, 0.10 ft³/s (0.003 m³/s) Sept. 25, 26, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft³/s (40 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
July 4	1500	2370	67.1	9.39	2.862
Aug. 12	1215	*3170	89.8	10.27	3.130

Minimum discharge, 0.28 ft³/s (0.008 m³/s) Oct. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	3.0	5.7	6.3	3.4	8.6	18	228	18	7.9	2.7	15
2	3.0	3.0	7.1	6.3	79	8.3	17	37	103	9.0	2.3	5.7
3	6.7	3.0	9.4	5.7	13	7.9	7.1	15	15	20	4.9	4.3
4	5.4	14	5.1	4.3	6.7	7.9	6.0	11	13	639	3.2	4.9
5	2.5	9.0	5.1	3.4	5.4	45	18	9.4	9.0	21	2.3	5.7
6	1.4	3.2	5.1	4.0	4.6	16	22	9.0	7.5	11	4.9	4.0
7	1.0	2.9	5.1	4.3	4.9	9.8	7.5	7.9	7.1	8.3	6.3	3.4
8	1.6	3.0	5.1	4.6	19	8.3	5.7	7.1	5.7	6.3	3.7	6.3
9	1.5	4.0	16	4.3	15	8.3	28	6.7	5.4	5.1	3.2	6.7
10	1.4	5.7	13	4.0	7.5	8.3	12	15	43	4.6	2.0	3.4
11	1.2	3.4	6.3	3.8	131	7.9	8.3	89	13	3.7	69	2.5
12	1.8	3.2	5.7	3.8	29	7.5	14	27	5.7	3.4	484	2.3
13	1.8	4.0	5.4	3.7	11	7.1	47	11	27	4.6	16	2.3
14	2.1	3.2	5.1	3.5	8.2	6.7	17	9.0	36	3.2	6.7	2.0
15	2.3	3.7	4.9	3.3	6.0	6.3	12	43	7.1	2.7	13	37
16	1.6	5.4	5.1	3.2	6.0	18	7.9	22	5.7	2.5	21	93
17	2.1	46	5.4	3.1	6.3	12	15	9.4	5.1	2.7	4.0	12
18	5.3	76	5.4	3.0	6.0	7.1	11	8.6	4.9	2.5	3.4	12
19	13	8.6	5.4	4.0	7.1	7.1	6.7	43	4.6	2.3	2.9	4.3
20	4.6	4.3	4.6	5.7	50	7.1	8.6	21	17	14	2.5	3.0
21	2.7	2.7	4.6	11	29	6.7	7.1	9.8	12	12	2.5	2.9
22	2.0	3.4	4.5	6.7	13	6.3	6.3	7.9	24	5.7	2.5	11
23	2.0	3.4	12	4.9	203	6.3	8.3	7.1	6.0	2.3	2.9	19
24	2.5	112	17	4.6	39	6.3	12	6.7	4.3	2.5	4.3	3.2
25	183	22	16	4.3	18	6.0	6.0	6.0	11	51	6.3	2.3
26	15	8.6	5.4	4.3	12	6.0	5.4	5.7	19	7.1	8.3	2.1
27	6.0	9.0	5.4	4.9	9.8	6.3	5.4	5.4	3.7	6.0	9.4	2.9
28	4.6	34	6.0	4.6	9.0	6.0	26	46	3.2	78	9.4	2.5
29	4.0	9.8	7.1	4.3	---	5.7	17	28	3.0	29	8.6	1.8
30	4.0	6.3	7.1	3.4	---	42	11	24	2.5	4.9	77	1.6
31	3.0	---	6.3	3.0	---	16	---	29	---	3.0	123	---
TOTAL	291.8	419.8	221.4	140.3	751.9	328.8	393.3	804.7	441.5	975.3	912.2	279.1
MEAN	9.41	14.0	7.14	4.53	26.9	10.6	13.1	26.0	14.7	31.5	29.4	9.30
MAX	183	112	17	11	203	45	47	228	103	639	484	93
MIN	1.0	2.7	4.5	3.0	3.4	5.7	5.4	5.4	2.5	2.3	2.0	1.6
CFSM	.40	.60	.30	.19	1.15	.45	.56	1.11	.63	1.34	1.25	.40
IN.	.46	.66	.35	.22	1.19	.52	.62	1.27	.70	1.54	1.44	.44

CAL YR 1980 TOTAL 8579.0 MEAN 23.4 MAX 274 MIN 1.0 CFSM 1.00 IN 13.58
WTR YR 1981 TOTAL 5960.1 MEAN 16.3 MAX 639 MIN 1.0 CFSM .69 IN 9.43

01655500 CEDAR RUN NEAR WARRENTON, VA

LOCATION.--Lat 38°44'25", long 77°47'16", Fauquier County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on State Highway 672, 1.9 mi (3.1 km) north of Warrenton, and 14.5 mi (23.3 km) upstream from Licking Run.

DRAINAGE AREA.--12.3 mi² (31.9 km²).

PERIOD OF RECORD.--July 1950 to current year.

REVISED RECORDS.--WSP 1382: 1951-53. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 419.40 ft (127.833 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of doubtful gage-height record, Dec. 17 to Feb. 15, which are poor. Some regulation by Warrenton municipal water-supply reservoir 400 ft (120 m) above station. Several observa- of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 12.8 ft³/s (0.362 m³/s), 14.13 in/yr (359 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,840 ft³/s (222 m³/s) June 21, 1972, gage height, 12.87 ft (3.923 m), from rating curve extended above 600 ft³/s (17 m³/s) on basis of areal study of flood of 1942; no flow part of each day Aug. 11-14, 1967, probably caused by dam 400 ft (120 m) above gage.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1942 reached a stage of about 13 ft (4.0 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Aug. 30	0930	*1620	45.9	8.22	2.505	Aug. 31	0430	291	8.24	5.12	1.561

Minimum discharge, 0.12 ft³/s (0.003 m³/s) Oct. 7, gage height, 1.86 ft (0.567 m); minimum daily, 0.26 ft³/s (0.007 m³/s) Nov. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	.55	1.4	1.5	.70	10	3.6	4.9	2.3	1.9	1.3	30
2	1.2	.50	1.4	1.4	1.5	8.8	3.5	3.1	3.0	1.9	1.3	16
3	1.1	.55	.95	1.3	10	7.4	3.5	2.4	12	2.0	1.3	12
4	1.0	.47	.95	1.3	8.0	4.9	3.5	2.4	14	2.6	1.3	11
5	1.1	.47	.90	1.3	5.0	10	3.6	3.1	11	2.1	1.3	12
6	1.1	.44	.90	1.2	1.5	10	4.0	2.5	10	2.1	1.3	9.8
7	1.6	.47	.90	1.1	1.1	9.4	4.0	2.6	8.5	2.1	1.3	7.3
8	2.1	.50	.90	1.1	.90	4.2	3.8	2.6	5.6	1.8	1.3	7.3
9	1.2	.50	.90	1.1	1.2	3.8	3.8	2.6	5.1	1.6	1.3	6.2
10	1.2	.50	.90	1.1	1.7	3.8	3.8	2.8	21	1.6	1.3	3.1
11	1.2	.29	.90	1.1	25	4.9	3.8	3.0	14	1.6	1.4	4.7
12	1.3	.26	.95	1.1	15	3.8	3.8	3.0	8.2	1.6	1.8	3.1
13	1.2	.40	1.0	1.0	9.0	4.0	4.0	2.8	6.0	1.7	1.7	2.2
14	1.1	1.5	1.0	1.0	7.0	6.7	3.8	3.5	9.4	1.7	1.4	2.9
15	1.0	1.8	1.0	1.0	4.5	3.3	3.6	56	7.1	1.7	1.4	8.6
16	.95	1.1	1.0	1.0	3.3	5.6	2.4	2.8	4.2	1.7	1.6	31
17	1.0	.95	.90	1.0	3.3	5.0	1.1	2.1	2.8	1.7	1.4	18
18	1.1	1.4	.80	1.2	3.3	3.3	22	2.4	1.7	1.7	1.4	11
19	.95	1.2	.80	1.7	3.3	3.3	29	2.6	1.7	1.7	1.4	7.8
20	1.1	1.0	.80	2.2	8.4	3.3	5.3	2.0	1.6	1.8	1.4	6.2
21	.90	1.0	.70	3.0	7.4	3.3	5.1	1.7	2.1	1.8	1.4	5.4
22	.95	1.0	.70	2.5	18	3.3	5.3	1.6	2.0	1.8	1.6	7.2
23	.95	1.1	.70	1.8	42	3.3	5.6	1.6	1.4	1.8	2.0	7.3
24	.90	1.9	.70	1.2	36	3.3	5.6	2.6	1.9	1.8	3.0	3.4
25	.85	1.7	.70	1.2	23	3.3	5.6	3.0	2.2	1.8	3.6	2.6
26	.55	1.4	.70	1.2	17	3.5	5.6	2.8	2.1	3.0	4.2	2.7
27	.55	1.4	.70	1.2	12	3.3	11	2.0	1.9	2.3	4.5	3.4
28	.50	1.9	.80	1.2	11	3.3	27	2.0	1.8	1.9	4.9	5.6
29	.50	1.4	1.1	1.1	---	3.3	8.6	2.6	1.8	2.4	4.7	2.4
30	.47	1.4	1.4	.90	---	3.5	4.2	2.4	1.8	2.6	271	2.2
31	.44	---	1.5	.80	---	3.5	---	2.4	---	1.3	98	---
TOTAL	31.46	29.05	28.95	40.80	280.10	152.4	199.5	133.9	168.2	59.1	426.8	252.4
MEAN	1.01	.97	.93	1.32	10.0	4.92	6.65	4.32	5.61	1.91	13.8	8.41
MAX	2.1	1.9	1.5	3.0	42	10	29	56	21	3.0	271	31
MIN	.44	.26	.70	.80	.70	3.3	1.1	1.6	1.4	1.3	1.3	2.2
CFSM	.08	.08	.08	.11	.81	.40	.54	.35	.46	.16	1.12	.68
IN.	.10	.09	.09	.12	.85	.46	.60	.40	.51	.18	1.29	.76

CAL YR 1980 TOTAL 3628.66 MEAN 9.91 MAX 156 MIN .26 CFSM .81 IN 10.97
WTR YR 1981 TOTAL 1802.66 MEAN 4.94 MAX 271 MIN .26 CFSM .40 IN 5.45

01656000 CEDAR RUN NEAR CATLETT, VA

LOCATION.--Lat 38°38'12", long 77°37'31", Fauquier County, Hydrologic Unit 02070010, on right bank 100 ft (30 m) downstream from bridge on State Highway 806, 0.9 mi (1.4 km) downstream from Licking Run, and 1.4 mi (2.3 km) southeast of Catlett.

DRAINAGE AREA.--93.4 mi^2 (241.9 km^2).

PERIOD OF RECORD.--July 1950 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-79-1: 1973-77(P).

GAGE.--Water-stage recorder. Datum of gage is 199.15 ft (60.701 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 87.4 ft^3/s (2.475 m^3/s), 12.71 in/yr (323 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,600 ft^3/s (1,090 m^3/s) June 22, 1972, gage height, 27.66 ft (8.431 m), from floodmarks, from rating curve extended above 5,000 ft^3/s (140 m^3/s) on basis of contracted-opening measurement of peak flow; no flow on many days in 1954, 1957, 1959, 1963, 1964, and 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of about 22 ft (6.7 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,280 ft^3/s (150 m^3/s) at 1830 hours Aug. 30, gage height, 13.38 ft (4.078 m), no other peak above base of 1,800 ft^3/s (51 m^3/s); minimum, 0.16 ft^3/s (0.005 m^3/s) July 24, gage height, 1.76 ft (0.536 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.35	1.4	11	5.5	3.1	43	17	160	8.5	1.5	6.6	160
2	.50	.35	8.4	5.1	29	37	16	176	93	1.2	4.6	80
3	.55	.30	6.7	4.0	98	32	15	59	62	1.9	9.3	53
4	.50	.60	6.0	3.8	70	26	11	36	47	83	28	43
5	.40	.96	5.1	3.3	47	38	10	25	36	39	9.4	40
6	.30	2.1	5.6	3.0	27	59	20	21	25	13	5.9	32
7	.25	3.0	6.0	3.0	9.4	41	21	19	23	7.9	4.9	24
8	.25	1.7	5.6	3.3	7.9	33	15	14	17	4.9	4.4	18
9	.20	1.4	6.4	3.0	15	26	13	13	12	3.9	4.2	18
10	.35	1.6	6.4	3.0	12	25	22	10	87	2.8	3.5	16
11	.55	1.4	7.5	2.8	460	24	18	22	77	1.9	2.8	11
12	.30	1.5	6.4	2.8	200	23	16	42	31	1.0	13	7.6
13	.20	3.4	6.0	2.7	102	21	44	20	19	.87	40	7.0
14	.25	2.0	5.3	3.1	68	19	39	14	19	.79	19	5.9
15	.35	1.5	5.0	3.6	40	20	38	12	24	.65	8.8	5.1
16	.35	1.7	5.2	4.0	27	17	24	25	16	.46	6.0	90
17	.50	3.8	4.7	3.8	24	20	22	15	9.7	.29	3.3	67
18	1.2	46	4.9	3.6	25	19	24	8.9	6.1	.39	1.8	36
19	1.4	22	4.6	5.3	28	16	57	16	4.4	.46	2.0	22
20	1.2	9.9	4.1	7.0	352	16	20	55	5.5	.46	1.4	15
21	2.0	6.1	3.4	8.9	331	15	17	28	32	.34	1.2	11
22	3.8	4.5	3.0	8.7	134	14	13	16	23	.25	.65	10
23	3.4	3.3	3.4	7.2	277	13	14	9.8	7.8	.19	.73	26
24	3.3	29	4.3	6.2	261	13	15	7.2	4.5	.36	.70	16
25	17	93	4.2	5.6	126	12	13	5.9	2.8	1.7	.56	8.1
26	27	23	3.8	5.9	80	11	11	6.6	4.4	53	.52	6.2
27	6.5	14	3.5	6.0	58	11	13	5.0	5.0	255	.72	5.4
28	2.8	24	3.8	6.1	46	10	25	74	2.7	81	.54	6.1
29	.96	25	4.8	6.0	---	10	28	48	1.9	73	.38	8.2
30	1.1	15	5.6	4.2	---	10	13	19	1.8	21	2300	5.3
31	1.7	---	5.6	3.4	---	17	---	11	---	11	743	---
TOTAL	79.51	343.51	166.3	143.9	2957.4	691	624	993.4	708.1	663.21	3227.90	852.9
MEAN	2.56	11.5	5.36	4.64	106	22.3	20.8	32.0	23.6	21.4	104	28.4
MAX	27	93	11	8.9	460	59	57	176	93	255	2300	160
MIN	.20	.30	3.0	2.7	3.1	10	10	5.0	1.8	.19	.38	5.1
CFSM	.03	.12	.06	.05	1.14	.24	.22	.34	.25	.23	1.11	.30
IN.	.03	.14	.07	.06	1.18	.28	.25	.40	.28	.26	1.29	.34

CAL YR 1980 TOTAL 23982.76 MEAN 65.5 MAX 1120 MIN .18 CFSM .70 IN 9.55
WTR YR 1981 TOTAL 11451.13 MEAN 31.4 MAX 2300 MIN .19 CFSM .34 IN 4.56

01656100 CEDAR RUN NEAR ADEN, VA

LOCATION.--Lat 38°36'56", long 77°33'16", Prince William County, Hydrologic Unit 02070010, on left bank at upstream side of bridge on State Highway 611, 0.5 mi (0.8 km) downstream from Darrels Run, 0.8 mi (1.3 km) downstream from Town Run, and 3.0 mi (4.8 km) southwest of Aden.

DRAINAGE AREA.--155 mi² (401 km²).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 166.27 ft (50.679 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Occasional diurnal fluctuation during low flow caused by irrigation dam 4.5 mi (7.2 km) above gage. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--9 years, 190 ft³/s (5.381 m³/s), 16.65 in/yr (423 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,900 ft³/s (422 m³/s) Oct. 1, 1979, gage height, 15.29 ft (4.660 m), from rating curve extended above 6,600 ft³/s (190 m³/s); minimum daily, 0.25 ft³/s (0.007 m³/s) Oct. 14, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of 21.37 ft (6.514 m), from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,730 ft³/s (247 m³/s) at 2230 hours Aug. 30, gage height, 13.25 ft (4.039 m), no other peak above base of 3,800 ft³/s (110 m³/s); minimum daily, 0.25 ft³/s (0.007 m³/s) Oct. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.5	2.3	17	8.4	8.6	64	26	235	14	4.4	9.4	218
2	1.7	.58	14	7.7	13	53	22	231	96	4.4	7.0	105
3	1.7	.50	10	7.3	54	44	21	73	89	4.8	111	65
4	1.3	1.5	10	6.4	34	36	17	41	53	427	154	48
5	.76	1.5	9.9	5.2	19	49	16	28	62	172	23	44
6	.63	1.4	9.2	5.3	13	86	26	23	30	47	13	37
7	.63	1.4	9.9	5.5	10	55	30	21	24	26	10	30
8	.50	1.4	9.9	4.8	10	42	21	17	20	16	8.3	23
9	.40	1.4	9.9	4.8	11	33	19	15	14	10	7.4	20
10	.50	1.4	11	4.4	11	29	26	14	49	8.1	5.9	19
11	.63	1.4	11	3.9	726	27	27	21	87	7.4	5.4	14
12	.45	1.4	11	3.7	331	26	24	204	33	6.3	15	10
13	.30	1.4	9.6	3.7	111	24	67	77	21	5.9	32	9.1
14	.25	1.4	8.9	4.4	65	21	75	39	17	5.4	15	7.6
15	.30	1.4	8.4	4.2	39	21	44	28	22	4.8	8.5	7.2
16	.30	1.4	8.2	4.2	34	19	41	36	17	4.8	6.3	119
17	.40	1.2	7.7	3.9	35	21	33	27	11	4.6	5.4	101
18	2.0	24	7.9	3.5	38	21	36	19	7.8	4.4	5.0	55
19	3.5	36	7.2	3.7	41	19	60	21	6.1	4.1	4.6	36
20	3.0	15	6.8	4.4	648	17	33	80	8.3	4.0	4.3	26
21	4.5	9.6	5.7	5.1	723	16	26	49	30	3.7	4.0	19
22	6.0	7.2	4.6	7.2	231	15	20	26	89	3.8	3.6	17
23	6.0	7.0	4.4	7.9	489	15	19	17	22	3.7	3.6	24
24	6.0	19	5.9	7.9	460	14	21	12	11	3.8	3.4	23
25	25	142	6.8	7.7	192	13	20	10	7.6	4.6	3.3	14
26	45	37	6.4	7.9	125	12	17	9.4	6.5	19	3.4	11
27	10	22	5.9	8.6	93	12	17	7.8	5.5	489	3.7	9.1
28	4.5	34	5.7	9.2	72	11	21	71	5.2	100	4.0	7.4
29	1.7	43	5.9	8.9	---	12	32	159	4.8	102	4.0	10
30	2.0	26	7.7	7.9	---	13	19	32	4.6	30	2050	9.1
31	3.0	---	8.4	7.0	---	23	---	21	---	15	3010	---
TOTAL	134.45	444.78	264.9	184.7	4636.6	863	892	1662.2	867.4	1546.0	6343.5	1137.5
MEAN	4.34	14.8	8.55	5.96	166	27.8	29.7	53.6	28.9	49.9	205	37.9
MAX	45	142	17	9.2	726	86	75	235	96	489	3010	218
MIN	.25	.50	4.4	3.5	8.6	11	16	7.8	4.6	3.7	3.3	7.2
CFSM	.03	.10	.06	.04	1.07	.18	.19	.35	.19	.32	1.32	.24
IN.	.03	.11	.06	.04	1.11	.21	.21	.40	.21	.37	1.52	.27

CAL YR 1980 TOTAL 41498.51 MEAN 113 MAX 4140 MIN .25 CFSM .73 IN 9.96
WTR YR 1981 TOTAL 18976.03 MEAN 52.0 MAX 3010 MIN .25 CFSM .34 IN 4.55

01656500 BROAD RUN AT BUCKLAND, VA

LOCATION.--Lat 38°46'50", long 77°40'22", Prince William County, Hydrologic Unit 02070010, on right bank at downstream side of bridge on U.S. Highway 29 at Buckland and 1.1 mi (1.8 km) upstream from South Run.

DRAINAGE AREA.--50.5 mi² (130.8 km²).

PERIOD OF RECORD.--July 1950 to September 1979, October 1980 to September 1981.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 284.58 ft (86.740 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--30 years, 51.1 ft³/s (1.447 m³/s), 13.74 in/yr (349 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,800 ft³/s (476 m³/s) June 21, 1972, gage height, 13.92 ft (4.243 m), from rating curve extended above 3,200 ft³/s (91 m³/s) on basis of slope-area measurements at gage heights 13.08 ft (3.987 m) and 13.92 ft (4.243 m); minimum, 0.20 ft³/s (0.006 m³/s) Oct. 10, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 746 ft³/s (21.1 m³/s) Aug. 30, gage height, 4.57 ft (1.393 m), no peak above base of 800 ft³/s (23 m³/s); minimum, 2.1 ft³/s (0.059 m³/s) Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.4	4.9	10	10	9.1	34	14	41	29	5.1	6.2	51
2	4.0	5.8	9.1	10	78	30	17	76	64	6.2	5.1	23
3	5.2	5.5	11	9.1	48	26	14	41	53	7.6	4.9	14
4	4.6	6.2	9.6	7.3	25	24	13	32	43	40	4.9	13
5	4.1	6.2	8.7	6.2	15	37	13	26	34	25	4.4	15
6	4.0	5.8	8.3	6.2	13	37	19	23	28	15	4.2	14
7	4.0	5.8	8.7	7.3	12	28	14	22	25	12	5.1	12
8	3.9	5.8	8.3	6.9	13	24	13	18	19	9.6	4.9	11
9	3.9	5.8	8.3	5.5	12	23	14	16	16	8.3	4.9	12
10	3.8	5.1	10	5.4	12	22	21	15	36	7.3	4.2	9.6
11	3.7	5.1	9.1	4.7	302	21	17	23	31	6.5	6.3	8.0
12	3.7	5.1	8.3	3.8	110	20	18	102	19	5.5	80	6.9
13	3.7	5.8	8.7	3.1	48	19	47	40	16	4.9	24	6.2
14	3.6	5.5	8.3	3.6	31	19	39	32	27	4.7	11	5.8
15	3.6	5.1	8.3	4.7	25	16	34	28	24	4.4	7.6	6.5
16	3.5	5.1	8.0	5.8	23	18	26	29	14	4.0	6.5	62
17	3.5	5.7	9.1	6.5	23	19	25	23	12	4.4	5.5	43
18	3.5	40	8.7	5.5	26	17	26	19	10	4.2	4.4	24
19	4.0	19	9.1	6.2	29	15	20	27	8.7	3.8	3.8	17
20	5.2	9.6	8.7	7.4	207	16	19	43	12	3.8	3.6	13
21	4.5	7.6	6.9	9.1	145	15	16	29	16	4.2	3.6	11
22	4.0	6.5	6.2	8.7	83	14	14	22	12	5.1	3.1	10
23	3.6	5.8	8.0	9.1	173	14	14	18	10	4.2	2.9	10
24	3.8	45	10	9.1	143	14	23	16	8.3	4.0	2.9	8.7
25	32	50	8.3	8.3	81	13	19	14	7.6	6.5	4.0	7.6
26	19	18	7.6	9.1	57	13	14	13	7.3	7.3	3.8	5.8
27	8.3	12	7.3	10	44	13	16	12	6.5	74	2.9	5.5
28	4.2	19	8.3	10	38	13	15	13	5.8	23	2.4	5.8
29	5.5	17	10	9.1	---	13	14	37	5.5	24	2.3	5.5
30	5.1	13	11	9.6	---	14	13	21	5.1	11	192	5.5
31	4.7	---	10	8.7	---	16	---	58	---	8.0	200	---
TOTAL	176.0	356.8	271.9	226.2	1825.1	617	581	929	604.8	353.6	621.4	442.4
MEAN	5.68	11.9	8.77	7.30	65.2	19.9	19.4	30.0	20.2	11.4	20.0	14.7
MAX	32	50	11	10	302	37	47	102	64	74	200	62
MIN	3.5	4.9	6.2	3.1	9.1	13	13	12	5.1	3.8	2.3	5.5
CFSM	.11	.24	.17	.15	1.29	.39	.38	.59	.40	.23	.40	.29
IN.	.13	.26	.20	.17	1.34	.45	.43	.68	.45	.26	.46	.33

WTR YR 1981 TOTAL 7005.2 MEAN 19.2 MAX 302 MIN 2.3 CFSM .38 IN 5.16

01656650 BROAD RUN NEAR BRISTOW, VA

LOCATION.--Lat 38°44'56", long 77°33'50", Prince William County, Hydrologic Unit 02070010, on left bank 50 ft (15 m) downstream from bridge on State Highway 619, 0.2 mi (0.3 km) upstream from Dawkins Branch, 1.9 mi (3.1 km) downstream from Rocky Branch, and 2.3 mi (3.7 km) northwest of Bristow.

DRAINAGE AREA.--89.6 mi² (232.1 km²).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 185 ft (56.4 m), from topographic map.

REMARKS.--Records poor. Town of Manassas diverts about 3.0 ft³/s (0.085 m³/s) daily from municipal water-supply reservoir 6.0 mi (9.7 km) upstream. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--7 years, 99.0 ft³/s (2.804 m³/s), 15.00 in/yr (381 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,800 ft³/s (221 m³/s) Oct. 9, 1976, gage height, 16.11 ft (4.910 m), from rating curve extended above 4,100 ft³/s (120 m³/s); minimum, 0.90 ft³/s (0.025 m³/s) Sept. 30, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 374 ft³/s (10.6 m³/s) Aug. 31, no peak above base of 900 ft³/s (25 m³/s); maximum gage height, 4.55 ft (1.387 m) Feb. 11; minimum discharge, 1.6 ft³/s (0.045 m³/s) Dec. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.8	45	4.6	7.4	8.4	15	17	78	40	8.2	7.4	141
2	4.8	50	2.6	7.4	13	14	21	112	104	8.5	6.4	57
3	5.8	50	7.7	6.0	13	14	16	77	88	9.7	6.0	25
4	5.6	51	9.8	5.0	8.4	16	13	51	63	93	8.2	8.5
5	5.3	52	11	4.0	6.4	21	13	38	50	65	8.5	7.4
6	4.8	52	11	3.0	6.4	46	25	32	38	41	10	9.3
7	5.1	52	11	2.8	6.1	50	15	29	35	28	12	10
8	10	53	12	2.9	6.8	30	9.3	20	24	18	12	10
9	40	53	14	2.7	7.1	24	10	17	19	14	12	11
10	43	53	14	2.6	7.1	22	20	16	37	12	12	12
11	43	51	12	2.5	108	23	20	21	56	10	12	12
12	43	50	11	2.4	48	20	20	58	38	8.2	19	12
13	45	47	12	2.3	27	16	48	56	30	5.7	25	13
14	46	46	11	3.0	23	27	58	40	30	6.8	25	14
15	46	46	11	4.0	20	12	63	33	34	7.4	13	15
16	44	46	11	5.0	17	11	37	33	28	7.8	16	33
17	43	46	11	5.8	17	17	37	24	22	8.2	23	47
18	45	50	9.8	5.4	17	14	43	20	16	8.5	15	44
19	46	44	10	6.4	20	10	34	20	11	8.9	8.9	33
20	43	41	9.8	8.0	80	10	34	35	11	8.5	8.5	23
21	42	40	8.7	9.0	56	11	26	35	23	9.3	8.9	20
22	42	40	8.7	9.0	30	12	24	31	27	11	10	20
23	41	39	9.8	7.7	64	11	22	20	21	10	10	42
24	42	48	11	7.1	47	11	27	15	14	12	10	21
25	44	47	9.0	6.4	26	12	34	12	8.9	11	10	17
26	43	40	8.3	6.8	20	12	21	11	6.4	12	10	12
27	41	39	8.0	9.8	17	9.7	16	10	14	20	10	12
28	40	40	7.5	11	16	12	16	10	7.4	15	11	12
29	40	32	7.2	11	---	10	17	20	8.5	15	11	12
30	41	6.8	7.2	9.4	---	11	22	33	8.5	12	69	10
31	38	---	7.2	8.7	---	14	---	36	---	9.7	270	---
TOTAL	1027.2	1349.8	298.9	184.5	735.7	537.7	778.3	1043	912.7	514.4	689.8	715.2
MEAN	33.1	45.0	9.64	5.95	26.3	17.3	25.9	33.6	30.4	16.6	22.3	23.8
MAX	46	53	14	11	108	50	63	112	104	93	270	141
MIN	4.8	6.8	2.6	2.3	6.1	9.7	9.3	10	6.4	5.7	6.0	7.4
CFSM	.37	.50	.11	.07	.29	.19	.29	.38	.34	.19	.25	.27
IN.	.43	.56	.12	.09	.31	.22	.32	.43	.38	.21	.29	.30

CAL YR 1980 TOTAL 27903.9 MEAN 76.2 MAX 929 MIN 2.6 CFSM .85 IN 11.58
WTR YR 1981 TOTAL 8787.2 MEAN 24.1 MAX 270 MIN 2.3 CFSM .27 IN 3.65

01656700 OCCOQUAN RIVER NEAR MANASSAS, VA

LOCATION.--Lat 38°42'19", long 77°26'46", Prince William County, Hydrologic Unit 02070010, on right bank 200 ft (61 m) downstream from bridge on State Highway 234 at Lake Jackson, 3.3 mi (5.3 km) southeast of Manassas, and 3.7 mi (6.0 km) upstream from Bull Run.

DRAINAGE AREA.--343 mi² (888 km²).

PERIOD OF RECORD.--April 1968 to February 1981 (discontinued). Prior to October 1970, published as Occoquan Creek near Manassas.

REVISED RECORDS.--WDR VA-76-1: 1972-75.

GAGE.--Water-stage recorder. Datum of gage is 119.53 ft (36.433 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Feb. 11, 12, which are fair. Some diurnal fluctuation caused by Lake Jackson Dam 650 ft (200 m) upstream from station. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--12 years, 432 ft³/s (12.23 m³/s), 17.10 in/yr (434 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,600 ft³/s (1,630 m³/s) June 22, 1972, gage height, 40.31 ft (12.286 m), from floodmarks; minimum, 0.02 ft³/s (<0.001 m³/s) Oct. 11, 1976, result of impounding at dam 650 ft (200 m) above gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge recorded during period October 1980 to February 1981, 1,520 ft³/s (43.0 m³/s) Feb. 21, gage height, 5.49 ft (1.673 m), but may have been more during period of no gage-height record Feb. 11, 12, no peak above base of 5,500 ft³/s (160 m³/s); minimum, 5.2 ft³/s (0.15 m³/s) Oct. 1, 2, 7-9.

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1980 TO FEBRUARY 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	46	42	15	15							
2	5.2	55	31	15	33							
3	6.0	57	23	13	66							
4	6.4	60	17	12	69							
5	6.0	59	16	10	43							
6	5.6	57	18	9.5	32							
7	5.2	57	15	9.5	26							
8	5.2	56	15	10	26							
9	9.5	58	15	9.5	24							
10	37	57	16	8.4	26							
11	44	54	18	8.0	700							
12	42	51	19	7.2	900							
13	40	51	20	6.8	197							
14	41	49	15	7.2	124							
15	43	49	14	7.2	87							
16	42	51	14	8.4	72							
17	45	56	14	9.0	63							
18	49	93	14	8.0	61							
19	67	96	13	7.2	63							
20	57	78	12	8.0	458							
21	47	61	11	12	1160							
22	43	55	10	13	426							
23	42	51	12	15	514							
24	43	77	12	16	845							
25	78	214	12	15	378							
26	75	136	11	15	230							
27	60	88	11	16	---							
28	50	93	11	17	---							
29	45	109	12	18	---							
30	45	78	13	17	---							
31	44	---	14	16	---							
TOTAL	1133.3	2152	490	358.9	---	---	---	---	---	---	---	---
MEAN	36.6	71.7	15.8	11.6	---	---	---	---	---	---	---	---
MAX	78	214	42	18	---	---	---	---	---	---	---	---
MIN	5.2	46	10	6.8	---	---	---	---	---	---	---	---
CFSM	.11	.21	.05	.03	---	---	---	---	---	---	---	---
IN.	.12	.23	.05	.04	---	---	---	---	---	---	---	---

CAL YR 1980 TOTAL 92040.1 MEAN 251 MAX 5710 MIN 5.2 CFSM .73 IN 9.98

01656725 BULL RUN NEAR CATHARPIN, VA

LOCATION.--Lat 38°53'21", long 77°34'14", Prince William County, Hydrologic Unit 02070010, on right bank 20 ft (6 m) downstream from bridge on State Highway 705, 0.7 mi (1.1 km) downstream from Chestnut Lick, 2.5 mi (4.0 km) north of Catharpin, and 6.7 mi (10.8 km) northeast of Gainesville.

DRAINAGE AREA.--25.8 mi² (66.8 km²).

PERIOD OF RECORD.--May 1969 to current year. Prior to October 1970, published as "on State Highway 705."

REVISED RECORDS.--WDR VA-75-1: 1974(P).

GAGE.--Water-stage recorder. Datum of gage is 237.78 ft (72.475 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--12 years, 34.5 ft³/s (0.977 m³/s), 18.16 in/yr (461 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,400 ft³/s (1,120 m³/s) June 22, 1972, gage height, 18.92 ft (5.767 m), from floodmarks, from rating curve extended above 3,000 ft³/s (85 m³/s) on basis of slope-area measurement of peak flow; no flow Sept. 8 to Oct. 10, 1970, July 5-9, 1977, Sept. 4-18, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 638 ft³/s (18.1 m³/s) Feb. 11, gage height, 4.55 ft (1.387 m), no peak above base of 820 ft³/s (23 m³/s); minimum, 0.01 ft³/s (<0.001 m³/s) Oct. 16, 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.08	.93	5.3	3.6	2.4	11	4.8	116	7.6	.84	1.6	4.3
2	.11	.84	4.5	3.0	37	9.7	5.3	77	33	.84	1.2	2.2
3	.15	.93	4.8	2.0	16	8.6	4.3	24	16	1.0	1.1	1.5
4	.21	1.2	4.8	1.4	8.6	7.2	3.6	16	13	64	1.0	1.4
5	.21	1.4	4.3	.90	4.8	16	3.8	12	9.3	10	1.0	1.8
6	.15	1.8	4.1	.80	3.8	14	6.0	10	7.2	5.3	1.1	2.4
7	.13	1.5	4.3	.90	3.8	9.3	4.3	9.7	6.0	3.4	1.4	2.1
8	.13	1.4	4.3	.90	4.5	7.9	3.8	7.9	4.3	2.1	1.6	2.0
9	.11	1.8	4.5	.86	5.3	6.9	4.5	6.9	3.4	1.6	1.6	2.2
10	.11	1.0	5.0	.80	4.3	6.6	6.6	6.3	5.6	1.4	1.6	2.0
11	.09	1.1	5.0	.74	227	6.0	5.0	13	5.6	1.0	1.2	1.4
12	.08	2.0	4.5	.70	33	5.6	6.9	80	3.8	.75	3.2	1.0
13	.04	1.8	4.5	.70	9.0	5.0	45	19	3.2	.57	2.4	1.0
14	.03	1.4	4.5	.70	5.3	4.5	20	12	3.6	.57	1.1	.84
15	.02	1.4	4.3	.70	4.3	4.1	14	11	4.3	.39	.84	3.2
16	.02	1.5	4.1	.70	3.8	4.8	11	11	3.2	.30	1.0	20
17	.01	1.8	4.3	.72	4.8	6.3	10	8.6	2.4	.30	1.0	7.6
18	.04	10	4.1	.72	7.6	5.0	10	7.2	2.1	.24	.57	3.8
19	.08	6.6	4.1	.90	11	4.5	8.6	14	1.8	.21	.27	2.2
20	.09	3.6	3.8	2.7	144	4.5	7.9	18	2.4	.18	.24	1.5
21	.13	2.4	3.2	3.6	58	4.3	6.9	10	6.3	.30	.14	1.2
22	.11	2.1	2.6	3.6	31	4.1	6.3	7.2	9.2	1.0	.13	1.0
23	.09	2.0	3.2	4.1	244	4.1	6.3	5.3	3.4	1.0	.11	1.0
24	.09	30	4.3	3.8	71	4.1	10	4.8	2.4	.84	.11	.93
25	7.3	26	4.1	3.6	29	3.8	7.6	4.3	1.8	1.0	.09	.75
26	5.3	7.9	2.7	3.8	16	3.8	6.0	3.6	1.6	2.4	.09	.48
27	2.0	5.6	2.2	4.1	12	4.1	6.0	3.2	1.5	13	.08	.27
28	1.2	9.7	2.7	4.1	12	4.1	5.6	3.8	1.1	17	.04	.24
29	1.4	9.0	3.6	3.8	---	3.6	6.6	5.0	1.0	13	.03	.18
30	1.2	6.3	4.5	3.2	---	4.3	5.3	5.0	.93	3.8	2.6	.18
31	1.1	---	4.1	2.7	---	6.0	---	16	---	2.2	19	---
TOTAL	21.81	145.00	126.3	64.84	1013.3	193.8	252.0	547.8	167.03	150.53	47.44	70.67
MEAN	.70	4.83	4.07	2.09	36.2	6.25	8.40	17.7	5.57	4.86	1.53	2.36
MAX	7.3	30	5.3	4.1	244	16	45	116	33	64	19	20
MIN	.01	.84	2.2	.70	2.4	3.6	3.6	3.2	.93	.18	.03	.18
CFSM	.03	.19	.16	.08	1.40	.24	.33	.69	.22	.19	.06	.09
IN.	.03	.21	.18	.09	1.46	.28	.36	.79	.24	.22	.07	.10

CAL YR 1980 TOTAL 7659.43 MEAN 20.9 MAX 444 MIN .00 CFSM .81 IN 11.04
WTR YR 1981 TOTAL 2800.52 MEAN 7.67 MAX 244 MIN .01 CFSM .30 IN 4.04

01656960 CUB RUN NEAR BULL RUN, VA

LOCATION.--Lat 38°49'16", long 77°27'57", Fairfax County, Hydrologic Unit 02070010, on right bank 20 ft (6 m) downstream from bridge on State Highway 658, 0.6 mi (1.0 km) downstream from Big Rocky Run, 1.2 mi (1.9 km) southeast of Bull Run, and 2.3 mi (3.7 km) upstream from mouth.

DRAINAGE AREA.--49.9 mi² (129.2 km²).

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 151.54 ft (46.189 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Feb. 11, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--9 years, 58.7 ft³/s (1.662 m³/s), 15.97 in/yr (406 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft³/s (300 m³/s) Oct. 1, 1979, gage height, 16.43 ft (5.008 m), from rating curve extended above 4,100 ft³/s (120 m³/s); minimum daily, 0.10 ft³/s (0.003 m³/s) Oct. 23, 1980, Sept. 30, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of 28.64 ft (8.729 m), from floodmarks, discharge not determined.

EXTREMES FOR CURRENT YEAR.--Maximum discharge recorded, 578 ft³/s (16.4 m³/s) May 2, gage height, 6.37 ft (1.942 m), but may have been more during period of no gage-height record Feb. 11, no peak above base of 1,500 ft³/s (42 m³/s); minimum daily, 0.10 ft³/s (0.003 m³/s) Oct. 23, Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.1	12	3.7	1.6	17	6.4	124	18	3.1	3.1	16
2	1.1	.96	9.0	3.5	22	14	7.4	241	121	2.9	2.5	5.1
3	1.2	1.1	8.0	2.8	48	11	5.8	54	60	2.9	1.8	3.1
4	1.1	2.2	8.0	2.5	18	9.4	5.2	30	32	18	1.6	2.9
5	.70	4.3	7.2	1.9	8.7	22	5.0	20	22	23	1.8	2.9
6	.50	3.2	6.4	1.6	6.1	48	11	14	16	9.5	1.6	2.9
7	.40	2.7	5.8	2.3	5.0	26	6.8	12	12	6.9	2.0	2.7
8	.40	2.0	5.6	2.0	5.6	17	5.6	10	9.5	4.6	2.3	2.9
9	.40	1.7	5.6	1.6	9.4	14	8.1	8.2	7.5	3.8	2.3	2.9
10	.35	1.2	6.4	1.7	7.6	11	16	6.9	15	2.9	2.2	2.9
11	.35	.60	5.0	1.5	237	11	13	36	15	2.5	3.1	2.7
12	.35	.70	3.9	1.2	117	9.7	12	81	9.8	2.2	38	2.3
13	.35	.83	3.9	.96	35	8.1	107	31	12	2.2	11	2.2
14	.30	.83	3.9	.80	18	6.8	58	18	31	2.0	4.1	1.8
15	.25	.83	4.3	.70	12	5.6	40	14	19	2.0	2.7	1.8
16	.25	.96	5.0	.70	10	6.4	22	12	13	1.8	2.9	3.8
17	.30	3.5	4.5	.70	9.7	9.7	16	9.8	10	1.4	2.3	4.8
18	.30	32	4.3	.70	10	8.1	17	8.2	8.2	1.1	2.2	3.8
19	.20	17	4.3	.80	13	7.4	12	14	6.6	.93	1.8	2.5
20	.20	8.7	3.5	1.9	174	6.8	9.7	29	7.8	1.1	1.6	1.8
21	.22	7.1	2.7	3.0	179	6.1	8.4	19	36	1.4	1.6	1.4
22	.15	6.6	1.9	3.2	76	5.2	7.1	12	102	1.0	1.2	1.6
23	.10	5.0	2.5	3.0	200	4.8	6.6	8.8	20	.93	1.1	2.2
24	.15	56	4.5	3.0	205	5.2	7.6	7.2	9.5	1.1	1.0	1.0
25	13	108	5.0	3.0	68	5.0	7.6	5.1	5.4	2.7	.93	.57
26	12	27	3.2	3.0	39	4.5	6.6	4.8	4.4	2.9	.84	.39
27	4.5	16	2.5	3.4	25	4.6	5.8	6.2	4.4	4.6	.75	.30
28	1.7	23	2.2	3.2	20	4.6	6.1	15	3.6	5.9	.66	.18
29	2.0	26	3.0	2.7	---	4.3	9.1	18	3.4	31	.57	.14
30	1.2	16	3.5	2.2	---	4.6	6.1	11	3.1	11	3.8	.10
31	.50	---	3.9	1.9	---	7.1	---	27	---	5.1	24	---
TOTAL	45.72	377.11	151.5	65.16	1579.7	325.0	455.0	907.2	637.2	162.46	127.35	79.68
MEAN	1.47	12.6	4.89	2.10	56.4	10.5	15.2	29.3	21.2	5.24	4.11	2.66
MAX	13	108	12	3.7	237	48	107	241	121	31	38	16
MIN	.10	.60	1.9	.70	1.6	4.3	5.0	4.8	3.1	.93	.57	.10
CFSM	.03	.25	.10	.04	1.13	.21	.31	.59	.43	.11	.08	.05
IN.	.03	.28	.11	.05	1.18	.24	.34	.68	.48	.12	.09	.06

CAL YR 1980 TOTAL 13529.16 MEAN 37.0 MAX 737 MIN .10 CFSM .74 IN 10.09
WTR YR 1981 TOTAL 4913.08 MEAN 13.5 MAX 241 MIN .10 CFSM .27 IN 3.66

01657000 BULL RUN NEAR MANASSAS, VA

LOCATION.--Lat 38°47'52", long 77°27'28", Fairfax County, Hydrologic Unit 02070010, on left bank at upstream side of bridge on State Highway 616, 0.5 mi (0.8 km) downstream from Cub Run, and 3.2 mi (5.1 km) north of Manassas.

DRAINAGE AREA.--148 mi^2 (383 km^2).

PERIOD OF RECORD.--October 1950 to September 1981 (discontinued).

REVISED RECORDS.--WDR VA-79-1: 1976(P), 1978(P).

GAGE.--Water-stage recorder. Datum of gage is 138.76 ft (42.294 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 14, 1967, at downstream side of former highway bridge at same datum.

REMARKS.--Records good except those for periods of no gage-height record, Dec. 2 to Jan. 8 and Jan. 14-21, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 157 ft^3/s (4.446 m^3/s), 14.41 in/yr (366 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,100 ft^3/s (2,160 m^3/s) June 22, 1972, gage height, 37.80 ft (11.521 m), from floodmarks, from rating curve extended above 10,600 ft^3/s (300 m^3/s) on basis of contracted-opening measurement at gage height 19.27 ft (5.873 m) and slope-area measurement of peak flow; minimum, 0.04 ft^3/s (0.001 m^3/s) Oct. 23, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,650 ft^3/s (46.7 m^3/s) Feb. 11, gage height, 7.31 ft (2.228 m), no peak above base of 4,000 ft^3/s (110 m^3/s); minimum, 0.04 ft^3/s (0.001 m^3/s) Oct. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.86	1.9	34	6.0	6.8	64	23	287	51	6.6	7.7	71
2	.50	1.4	30	6.0	59	55	23	678	238	6.3	6.3	23
3	.40	1.2	19	5.6	136	42	21	155	155	7.6	3.7	12
4	.86	4.0	14	5.2	71	37	17	86	84	234	3.0	8.9
5	1.0	4.0	11	4.7	33	70	23	58	57	113	3.4	7.5
6	1.2	4.4	10	4.5	23	127	28	47	40	35	3.1	5.9
7	1.2	2.2	10	4.3	17	75	25	41	31	21	4.3	5.8
8	.60	2.5	10	4.1	22	52	20	34	25	15	3.8	6.2
9	.73	2.2	9.5	3.2	26	43	25	28	19	9.2	4.7	6.2
10	1.4	2.5	11	2.6	23	38	37	26	46	7.6	3.6	5.0
11	.50	.73	10	2.4	764	37	35	101	36	5.7	18	4.0
12	.73	1.2	10	2.2	412	32	40	243	26	5.1	64	4.0
13	1.0	1.9	9.5	2.0	113	30	233	104	24	5.0	45	2.6
14	1.9	1.4	9.0	1.9	74	26	148	58	45	3.5	20	2.6
15	2.2	1.6	8.4	1.9	55	25	105	47	32	3.2	18	9.4
16	3.1	2.8	7.4	1.9	44	25	64	42	24	3.5	16	34
17	.40	21	7.0	1.9	41	29	54	35	18	3.0	8.5	38
18	1.4	80	6.6	1.9	39	29	52	29	15	2.3	5.7	19
19	.73	54	6.2	2.2	41	28	42	41	12	2.8	4.4	11
20	1.0	26	6.0	3.0	513	26	35	78	19	2.5	4.0	6.5
21	.30	15	5.6	4.5	457	23	31	59	43	9.9	3.5	4.4
22	.30	9.0	6.0	6.8	210	21	26	37	122	3.7	2.2	12
23	.13	8.5	6.2	12	631	21	25	28	37	2.3	3.1	7.9
24	.30	98	6.2	10	641	19	28	23	18	3.6	2.5	2.8
25	81	329	6.2	10	215	19	32	19	14	9.9	2.2	2.5
26	64	74	5.8	9.5	126	16	27	18	12	87	2.2	1.2
27	34	45	5.6	9.7	90	16	26	15	8.6	117	1.9	3.5
28	14	57	5.6	10	72	17	24	21	6.9	50	2.2	1.6
29	6.5	63	6.0	8.9	---	16	27	34	6.9	75	1.9	.50
30	4.4	45	6.0	9.0	---	22	26	27	6.9	33	42	.50
31	2.8	---	6.0	6.3	---	24	---	52	---	16	167	---
TOTAL	229.44	960.43	303.8	164.2	4954.8	1104	1322	2551	1272.3	899.3	477.9	319.50
MEAN	7.40	32.0	9.80	5.30	177	35.6	44.1	82.3	42.4	29.0	15.4	10.7
MAX	81	329	34	12	764	127	233	678	238	234	167	71
MIN	.13	.73	5.6	1.9	6.8	16	17	15	6.9	2.3	1.9	.50
CFSM	.05	.22	.07	.04	1.20	.24	.30	.56	.29	.20	.10	.07
IN.	.06	.24	.08	.04	1.25	.28	.33	.64	.32	.23	.12	.08

CAL YR 1980 TOTAL 42942.90 MEAN 117 MAX 2350 MIN .13 CFSM .79 IN 10.79
WTR YR 1981 TOTAL 14558.67 MEAN 39.9 MAX 764 MIN .13 CFSM .27 IN 3.66

01657415 BULL RUN NEAR CLIFTON, VA

LOCATION.--Lat 38°45'59", long 77°24'52", Fairfax County, Hydrologic Unit 02070010, on left bank 0.6 mi (1.0 km) downstream from Popes Head Creek, 1.6 mi (2.6 km) upstream from Buckhall Branch, and 1.8 mi (2.9 km) southwest of Clifton.

DRAINAGE AREA.--185 mi² (479 km²).

PERIOD OF RECORD.--September 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 120.24 ft (36.649 m) National Geodetic Vertical Datum of 1929. September 1972 to June 1978, at site 500 ft (152 m) upstream at datum 3.59 ft (1.094 m) higher.

REMARKS.--Records good. Slight diurnal fluctuation caused by Upper Occoquan Sewage Authority treatment plant 4.8 mi (7.7 km) upstream. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--9 years, 228 ft³/s (6.457 m³/s), 16.74 in/yr (425 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft³/s (623 m³/s) Sept. 26, 1975, gage height, 19.52 ft (5.950 m), datum then in use, from rating curve extended above 400 ft³/s (11 m³/s) on basis of runoff comparison with upstream station near Manassas; minimum, 5.8 ft³/s (0.16 m³/s) Aug. 30, 1976.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1972 reached a stage of about 35 ft (10.7 m), discharge, about 80,000 ft³/s (2,300 m³/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,360 ft³/s (38.5 m³/s) Feb. 11, gage height, 7.84 ft (2.390 m), no peak above base of 4,200 ft³/s (120 m³/s); minimum, 7.0 ft³/s (0.20 m³/s) Oct. 12, gage height, 1.96 ft (0.597 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	13	43	24	17	89	46	319	75	14	20	118
2	12	13	38	22	68	80	48	716	260	14	16	44
3	11	13	36	21	114	67	44	212	210	15	14	26
4	12	13	30	20	83	58	40	120	89	201	13	20
5	11	18	24	18	48	88	39	86	63	179	12	18
6	11	17	25	17	32	161	62	72	51	62	13	17
7	11	15	24	17	27	104	51	64	46	39	13	16
8	11	15	24	16	29	78	44	54	44	30	14	17
9	8.9	15	22	16	32	68	46	48	39	23	14	17
10	9.2	14	27	16	36	62	69	44	74	19	13	15
11	8.9	13	25	15	590	61	65	155	59	16	19	14
12	8.3	12	24	14	433	55	58	312	46	14	146	13
13	8.3	13	23	14	144	52	263	150	39	13	72	13
14	9.8	14	21	14	89	48	196	91	73	12	38	12
15	10	14	22	14	64	46	140	76	57	10	24	12
16	12	14	21	14	56	46	93	74	43	11	40	66
17	11	17	21	15	61	51	80	59	34	11	20	46
18	9.2	118	21	15	59	51	81	51	28	10	17	34
19	11	83	20	16	59	49	68	57	24	9.8	14	23
20	11	48	18	19	446	46	59	98	27	10	13	18
21	10	33	19	24	506	43	53	86	55	12	12	16
22	8.6	24	17	24	262	41	48	62	140	17	11	15
23	8.3	22	19	24	586	39	44	47	60	11	11	32
24	8.3	97	21	23	732	38	46	42	35	9.8	11	15
25	70	450	22	23	278	37	50	36	24	17	11	14
26	74	200	20	23	166	34	44	34	30	39	9.8	13
27	49	55	19	24	119	33	44	29	19	182	9.5	12
28	28	66	19	22	98	33	41	38	16	71	9.3	20
29	20	72	20	22	---	34	46	57	15	87	10	12
30	16	54	22	21	---	38	44	48	15	54	48	11
31	15	---	22	19	---	54	---	58	---	30	174	---
TOTAL	515.8	1565	728	586	5234	1784	2052	3395	1790	1242.6	861.6	719
MEAN	16.6	52.2	23.5	18.9	187	57.5	68.4	110	59.7	40.1	27.8	24.0
MAX	74	450	43	24	732	161	263	716	260	201	174	118
MIN	8.3	12	17	14	17	33	39	29	15	9.8	9.3	11
CFSM	.09	.28	.13	.10	1.01	.31	.37	.60	.32	.22	.15	.13
IN.	.10	.31	.15	.12	1.05	.36	.41	.68	.36	.25	.17	.14

CAL YR 1980 TOTAL 55228.4 MEAN 151 MAX 2880 MIN 8.3 CFSM .82 IN 11.11
WTR YR 1981 TOTAL 20473.0 MEAN 56.1 MAX 732 MIN 8.3 CFSM .30 IN 4.12

01657655 HOOES RUN NEAR OCCOQUAN, VA

LOCATION.--Lat 38°40'48", long 77°17'25", Prince William County, Hydrologic Unit 02070010, on left bank 900 ft (274 m) upstream from bridge on State Highway 641, 0.9 mi (1.4 km) downstream from Lake Omiscol, and 1.6 mi (2.6 km) west of Occoquan.

DRAINAGE AREA.--3.97 mi² (10.28 km²).

PERIOD OF RECORD.--November 1974 to current year.

GAGE (REVISED).--Water-stage recorder. Datum of gage is 122.74 ft (37.411 m), National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--6 years, 4.63 ft³/s (0.131 m³/s), 15.84 in/yr (402 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,280 ft³/s (36.2 m³/s) Sept. 26, 1975, gage height, 8.18 ft (2.493 m), from rating curve extended above 70 ft³/s (2.0 m³/s) on basis of velocity-area study; minimum, 0.01 ft³/s (<0.001 m³/s) Sept. 11, 12, 1976, many days in September and October 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 312 ft³/s (8.84 m³/s) at 1930 hours July 26, gage height, 4.16 ft (1.268 m), no other peak above base of 200 ft³/s (5.7 m³/s); minimum, 0.01 ft³/s (<0.001 m³/s) Oct. 1, 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.15	1.1	.44	.30	1.7	3.2	11	1.1	.45	.89	.75
2	.02	.06	.78	.53	4.4	1.5	3.4	7.9	6.0	.35	.70	.45
3	.18	.03	.61	.53	3.1	1.3	2.5	4.4	3.4	.65	1.8	.28
4	.04	.27	.33	.44	1.6	1.2	1.7	3.2	1.9	19	1.3	.26
5	.02	.15	.30	.36	1.0	2.6	2.3	2.5	1.5	3.2	.98	.24
6	.02	.09	.33	.27	.78	2.5	3.4	1.9	1.3	1.5	.98	.22
7	.02	.06	.44	.30	.70	1.9	2.3	1.5	.98	1.1	.80	.18
8	.02	.06	.53	.28	1.0	1.3	2.8	1.3	.75	.80	.75	.18
9	.02	.19	.44	.25	1.1	1.2	3.2	1.2	.65	.60	.60	.14
10	.02	.21	.33	.22	.95	1.2	4.0	1.5	6.3	.55	.60	.10
11	.09	.21	.30	.20	16	1.2	2.9	7.2	3.6	.50	.60	.12
12	.09	.18	.27	.18	7.9	1.2	2.0	9.6	1.7	.40	.75	.20
13	.04	.12	.44	.16	3.9	1.2	4.5	4.9	1.5	.35	.50	.20
14	.03	.06	.86	.14	2.5	.98	3.5	3.2	3.6	.35	.50	.18
15	.02	.09	.53	.13	1.9	.89	3.0	2.8	2.3	.35	1.5	7.3
16	.02	.15	.36	.21	1.6	.98	2.6	2.5	1.3	.30	.89	17
17	.02	2.9	.33	.30	1.6	1.2	2.8	1.7	1.2	.30	.55	.80
18	5.1	6.3	.33	.30	1.5	.98	3.0	1.3	.80	.30	.35	.65
19	3.5	1.5	.30	.27	1.4	1.1	2.3	3.4	.75	.30	.28	.28
20	.61	.95	.30	.30	4.6	.98	2.5	3.6	.89	.30	.26	.24
21	.30	.86	.24	.70	5.4	.89	1.9	2.3	1.7	.30	.24	.24
22	.06	.70	.27	.78	4.1	.98	1.7	1.5	2.1	.35	.24	1.5
23	.12	.36	.33	.70	21	.89	2.5	1.3	1.2	.30	.22	.50
24	.12	4.0	.61	.61	9.6	.80	3.4	1.1	.89	.40	.16	.30
25	14	4.4	.44	.53	5.4	.80	2.6	.75	1.2	8.8	.16	.16
26	3.3	2.0	.30	.53	3.2	.80	1.9	.70	1.2	18	.16	.14
27	.86	1.2	.27	.61	2.3	.75	2.3	.65	.80	11	.16	.10
28	.24	2.7	.27	.53	1.7	.70	1.7	1.6	.65	9.8	.16	.10
29	.18	1.6	.33	.44	---	.75	1.7	1.6	.55	4.1	.14	.09
30	.15	1.1	.44	.36	---	2.3	1.7	1.2	.45	1.7	5.0	.08
31	.15	---	.44	.33	---	2.6	---	.98	---	1.2	1.1	---
TOTAL	29.37	32.65	13.15	11.93	110.53	39.37	79.3	90.28	52.26	87.60	23.32	32.98
MEAN	.95	1.09	.42	.38	3.95	1.27	2.64	2.91	1.74	2.83	.75	1.10
MAX	14	6.3	1.1	.78	21	2.6	4.5	11	6.3	19	5.0	17
MIN	.01	.03	.24	.13	.30	.70	1.7	.65	.45	.30	.14	.08
CFSM	.24	.28	.11	.10	1.00	.32	.67	.73	.44	.71	.19	.28
IN.	.28	.31	.12	.11	1.04	.37	.74	.85	.49	.82	.22	.31

CAL YR 1980 TOTAL 1108.79 MEAN 3.03 MAX 39 MIN .01 CFSM .76 IN 10.39
WTR YR 1981 TOTAL 602.74 MEAN 1.65 MAX 21 MIN .01 CFSM .42 IN 5.65

01658500 SOUTH FORK QUANTICO CREEK NEAR INDEPENDENT HILL, VA

LOCATION.--Lat 38°35'14", long 77°25'44", Prince William County, Hydrologic Unit 02070011, on left bank at upstream side of bridge on State Highway 619, 3.4 mi (5.5 km) south of Independent Hill, 5.6 mi (9.0 km) west of Dumfries, and 6.5 mi (10.5 km) upstream from mouth.

DRAINAGE AREA.--7.64 mi^2 (19.79 km^2).

PERIOD OF RECORD.--May 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 238.88 ft (72.811 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--30 years, 6.92 ft^3/s (0.196 m^3/s), 12.30 in/yr (312 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,940 ft^3/s (112 m^3/s) June 21, 1972, gage height, 11.35 ft (3.459 m); no flow at times in 1954, 1957, 1962-66.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 35 ft^3/s (0.99 m^3/s) May 11, gage height, 2.96 ft (0.902 m), no peak above base of 200 ft^3/s (5.7 m^3/s); minimum, 0.04 ft^3/s (0.001 m^3/s) Oct. 1, 7, gage height, 1.93 ft (0.588 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.04	.60	.72	1.0	1.3	1.8	3.9	9.3	.80	.45	1.5	3.5
2	.05	.40	.64	.80	5.9	1.6	4.9	11	2.5	.55	4.3	2.5
3	.09	.40	.65	.65	4.7	1.5	3.3	7.1	1.9	1.0	5.6	1.5
4	.10	.50	.65	.55	1.9	3.4	2.8	5.4	1.5	13	2.5	1.0
5	.10	.66	.66	.50	1.2	6.6	3.5	4.6	1.2	13	1.5	.90
6	.10	.47	.70	1.0	1.1	6.7	8.4	4.4	.93	6.5	1.0	.85
7	.07	.32	.70	1.2	1.4	2.5	4.7	4.8	.93	2.5	.80	.80
8	.05	.27	.80	.99	2.0	1.6	3.7	4.4	.73	1.5	.70	.75
9	.06	.29	1.0	.70	2.2	1.3	4.6	4.2	1.4	1.0	.60	.75
10	.07	.57	1.4	.60	2.2	1.2	6.3	4.8	3.4	.90	.55	.70
11	.09	.30	1.1	.45	21	1.1	4.5	20	3.0	.75	.80	.70
12	.13	.28	.74	.35	12	1.1	4.5	26	1.4	.65	5.0	.75
13	.13	.25	.70	.32	4.5	1.1	13	6.8	1.0	.55	.45	.70
14	.13	.25	.65	.42	2.7	1.0	8.6	3.3	2.1	.45	.42	.65
15	.17	.27	.60	.50	2.3	1.0	7.3	2.5	1.9	.40	.42	1.0
16	.28	.80	.60	.67	2.1	1.3	5.6	2.4	1.4	.35	.72	16
17	.41	1.6	.55	.77	2.1	1.1	6.8	1.8	.80	.30	1.3	10
18	1.6	5.3	.55	.63	2.0	1.0	7.1	1.4	.59	.30	.70	7.0
19	4.9	2.0	.50	.71	2.1	1.0	5.3	4.2	.76	.25	.50	4.5
20	4.7	1.2	.50	.99	20	1.0	5.4	7.0	1.3	.25	.45	2.5
21	3.4	.90	.50	1.9	21	.90	5.1	3.2	1.4	.25	.45	1.5
22	2.8	.80	.50	1.8	5.8	.90	5.1	2.0	2.4	.25	.45	1.0
23	2.3	.79	.55	1.5	14	1.0	5.4	1.4	2.3	.25	.45	.90
24	2.1	3.5	.55	1.5	13	1.0	9.4	1.3	1.7	.40	.45	.80
25	4.5	4.4	.65	1.4	4.5	1.0	5.7	1.1	1.1	4.0	.45	.65
26	7.6	1.3	.80	1.7	2.9	1.0	5.0	.92	.80	9.0	.45	.55
27	4.7	.89	1.5	1.8	2.2	.90	5.5	.81	.65	14	.45	.50
28	2.0	2.2	2.2	1.6	2.0	.90	5.1	.84	.55	10	.70	.45
29	1.5	1.6	2.6	1.4	---	.90	4.7	1.1	.45	11	1.5	.45
30	1.0	1.0	2.3	1.5	---	2.9	4.9	.98	.40	7.5	3.5	.40
31	.80	---	1.5	1.4	---	4.5	---	.80	---	6.8	4.3	---
TOTAL	45.97	34.11	28.06	31.30	160.1	54.80	170.1	149.85	41.29	108.10	42.96	64.25
MEAN	1.48	1.14	.91	1.01	5.72	1.77	5.67	4.83	1.38	3.49	1.39	2.14
MAX	7.6	5.3	2.6	1.9	21	6.7	13	26	3.4	14	5.6	16
MIN	.04	.25	.50	.32	1.1	.90	2.8	.80	.40	.25	.42	.40
CFSM	.19	.15	.12	.13	.75	.23	.74	.63	.18	.46	.18	.28
IN.	.22	.17	.14	.15	.78	.27	.83	.73	.20	.53	.21	.31

CAL YR 1980 TOTAL 2106.05 MEAN 5.75 MAX 66 MIN .03 CFSM .75 IN 10.25
WTR YR 1981 TOTAL 930.89 MEAN 2.55 MAX 26 MIN .04 CFSM .33 IN 4.53

01660400 AQUIA CREEK NEAR GARRISONVILLE, VA

LOCATION.--Lat 38°29'25", long 77°26'02", Stafford County, Hydrologic Unit 02070011, on right bank at bridge on State Highway 641, 1.1 mi (1.8 km) northwest of Garrisonville, and 3.0 mi (4.8 km) upstream from Beaverdam Run.

DRAINAGE AREA.--34.9 mi^2 (90.4 km^2).

PERIOD OF RECORD.--September 1971 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 120 ft (36.6 m), from topographic map.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--10 years, 39.4 ft^3/s (1.116 m^3/s), 15.33 in/yr (389 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,600 ft^3/s (329 m^3/s) June 22, 1972, gage height, 16.32 ft (4.974 m), from rating curve extended above 1,600 ft^3/s (45 m^3/s) on basis of contracted-opening measurement of peak flow; no flow Sept. 15-17, 1980.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s (14 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
July 26	2330	813	23.0	4.18	1.274	Aug. 30	2030	*1890	53.5	6.36	1.938

Minimum discharge, 0.02 ft^3/s (<0.001 m^3/s) Oct. 1, 2, 10, 11, 14, 15, 17, 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.02	.31	10	10	3.4	11	13	13	6.1	1.8	5.6	42
2	.03	.38	7.3	7.8	14	10	14	19	15	1.9	4.6	17
3	.10	.45	6.8	5.8	20	9.0	11	11	13	2.6	10	12
4	.10	.66	7.2	4.4	12	8.2	9.3	8.1	10	67	8.8	12
5	.04	2.2	7.3	3.1	6.5	12	9.8	6.4	8.7	43	4.6	9.8
6	.04	1.0	7.9	2.3	5.0	14	15	5.9	7.4	28	3.9	8.4
7	.03	.38	7.5	2.2	4.8	11	14	5.6	6.6	11	4.6	7.2
8	.03	.34	7.5	2.4	5.6	9.6	11	5.1	6.0	6.7	4.4	6.5
9	.03	.28	7.9	2.3	6.8	9.0	9.0	4.8	4.8	4.8	4.1	4.7
10	.03	.31	10	2.1	5.9	8.3	10	4.8	8.2	4.0	3.8	4.1
11	.17	.42	10	2.0	46	8.1	9.1	49	7.7	3.4	4.7	3.3
12	.08	.49	9.6	1.9	50	7.7	9.0	187	6.1	2.9	40	3.5
13	.03	.54	11	1.9	27	7.7	34	44	6.3	2.5	19	3.0
14	.02	.52	7.4	1.8	16	6.8	25	22	19	1.7	9.4	3.0
15	.02	.77	8.2	1.9	11	6.4	21	17	13	1.9	6.0	2.8
16	.03	.94	7.4	2.6	9.3	7.3	14	16	8.3	1.7	5.0	47
17	.03	2.0	7.6	3.4	8.6	7.9	12	12	6.3	1.6	4.0	26
18	.04	15	8.3	3.4	8.0	8.3	15	11	5.5	1.0	3.2	14
19	.08	7.3	8.3	3.2	7.8	8.6	11	20	4.4	.76	2.7	10
20	.08	5.2	7.8	4.6	80	8.6	9.6	35	20	1.2	2.3	7.1
21	.06	4.3	7.3	5.0	92	7.9	8.5	19	32	1.2	1.9	6.6
22	.08	3.1	6.6	5.6	39	7.9	7.2	11	73	1.2	2.3	6.2
23	.08	3.4	7.1	5.3	49	7.7	7.0	7.7	15	.91	2.1	7.2
24	.08	6.3	8.6	4.8	57	7.8	7.7	6.5	7.4	1.1	2.3	5.0
25	2.6	14	9.0	4.6	30	7.5	7.5	5.9	5.2	5.4	2.0	4.0
26	3.8	9.9	8.0	4.6	19	7.7	6.4	5.4	3.9	55	2.0	3.0
27	1.9	8.4	7.5	5.5	14	7.3	10	4.8	3.2	200	1.8	2.5
28	1.3	12	7.7	4.8	12	6.9	6.5	9.6	2.5	51	1.7	2.4
29	.92	13	9.5	4.7	---	6.9	5.7	9.0	2.2	43	1.2	2.2
30	.66	11	11	4.0	---	8.8	5.4	7.8	1.5	12	469	2.1
31	.45	---	11	3.7	---	14	---	6.4	---	7.2	265	---
TOTAL	12.96	124.89	258.3	121.7	659.7	269.9	347.7	589.8	328.3	567.47	902.0	284.6
MEAN	.42	4.16	8.33	3.93	23.6	8.71	11.6	19.0	10.9	18.3	29.1	9.49
MAX	3.8	15	11	10	92	14	34	187	73	200	469	47
MIN	.02	.28	6.6	1.8	3.4	6.4	5.4	4.8	1.5	.76	1.2	2.1
CFSM	.01	.12	.24	.11	.68	.25	.33	.54	.31	.52	.83	.27
IN.	.01	.13	.28	.13	.70	.29	.37	.63	.35	.60	.96	.30

CAL YR 1980 TOTAL 9434.04 MEAN 25.8 MAX 305 MIN .00 CFSM .74 IN 10.06
WTR YR 1981 TOTAL 4467.32 MEAN 12.2 MAX 469 MIN .02 CFSM .35 IN 4.76

01661800 BUSH MILL STREAM NEAR HEATHSVILLE, VA

LOCATION.--Lat 37°52'36", long 76°29'42", Northumberland County, Hydrologic Unit 02080102, on right bank 12 ft (4 m) upstream from bridge on State Highway 601, 2.2 mi (3.5 km) northwest of Howland, 3.0 mi (4.8 km) southwest of Heathsville, and 3.5 mi (5.6 km) upstream from mouth.

DRAINAGE AREA.--6.82 mi² (17.66 km²).

PERIOD OF RECORD.--October 1963 to March 1969, October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 23.78 ft (7.248 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 19, 1969, 52 ft (16 m) downstream at datum 0.74 ft (0.226 m) lower.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--17 years (water years 1964-68, 1970-81), 7.54 ft³/s (0.214 m³/s), 15.01 in/yr (381 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 714 ft³/s (20.2 m³/s) July 30, 1979, gage height, 8.52 ft (2.597 m), from rating curve extended above 130 ft³/s (3.7 m³/s); no flow many days in August and September 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 20, 1969, reached a stage of 6.13 ft (1.868 m), present datum, from floodmarks, discharge, about 450 ft³/s (13 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 39 ft³/s (1.10 m³/s) May 19, gage height, 3.74 ft (1.140 m), no peak above base of 100 ft³/s (2.8 m³/s); minimum, 0.18 ft³/s (0.005 m³/s) July 20, 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	1.5	3.0	2.8	2.6	3.0	4.7	2.1	3.0	2.3	.95	.90
2	1.2	1.4	3.0	3.1	8.0	3.0	7.3	2.2	3.4	1.5	.87	.66
3	2.0	1.5	3.3	2.8	5.3	2.7	3.5	1.6	3.1	1.3	.84	.54
4	2.7	3.4	2.9	2.4	3.0	2.6	2.6	1.4	2.3	4.7	.93	.47
5	1.4	4.6	2.8	1.7	2.7	7.2	7.0	1.2	1.9	2.5	.76	.54
6	1.0	2.7	2.9	1.8	2.7	5.0	18	1.2	1.6	7.4	.79	.66
7	.92	2.3	2.8	3.8	3.1	3.9	5.3	1.3	1.9	2.1	.92	.78
8	.98	2.2	2.9	3.0	6.4	3.7	4.1	1.1	1.4	1.1	1.9	1.0
9	.92	2.2	3.4	2.7	4.2	3.4	3.8	1.1	1.2	.74	1.4	1.2
10	1.1	3.4	4.5	2.4	3.5	2.9	3.5	1.4	11	.58	.91	1.0
11	1.4	2.2	3.4	2.1	11	2.9	2.9	3.0	4.0	.50	.79	.70
12	1.4	2.1	3.0	1.9	7.0	2.8	2.7	4.2	2.2	.42	1.8	.58
13	1.1	2.1	2.9	1.9	4.2	2.5	7.6	1.7	1.9	.37	1.5	.47
14	1.0	2.2	2.8	1.7	3.7	2.3	4.3	1.3	3.1	.33	.96	.44
15	1.2	2.2	2.6	2.7	3.5	2.3	3.7	6.3	2.0	.25	.77	.41
16	1.0	2.2	2.9	3.5	3.5	4.5	2.7	9.7	1.5	.29	.64	10
17	1.1	2.3	3.0	4.0	3.5	5.9	2.8	2.4	1.4	.41	.53	3.5
18	1.2	11	2.7	3.2	3.4	3.6	2.8	1.8	1.3	.32	.47	5.9
19	14	4.3	2.7	2.6	3.0	3.4	2.2	28	1.3	.25	.60	3.6
20	2.9	3.3	2.4	3.2	7.2	3.1	11	12	1.5	.23	.82	2.4
21	1.3	3.0	2.2	4.5	12	2.7	5.2	5.9	2.0	1.3	.59	1.8
22	1.2	2.8	1.9	5.3	6.2	2.5	3.6	4.0	1.4	1.1	1.2	1.5
23	1.2	2.8	3.9	5.0	6.4	3.7	3.2	3.1	1.2	.50	1.4	1.3
24	1.3	4.5	4.3	4.5	5.9	3.3	7.1	2.6	1.1	.37	.84	1.2
25	26	5.7	3.1	4.6	4.5	2.5	3.4	2.3	1.0	.39	.68	1.0
26	11	3.7	3.0	4.1	3.7	2.3	2.7	1.9	1.0	.42	.58	.95
27	2.2	3.5	2.8	4.2	3.5	2.3	2.9	1.6	.95	2.6	.51	.82
28	1.7	4.6	3.5	3.5	3.0	2.1	2.4	19	.90	8.0	.45	.62
29	1.5	3.6	3.9	3.0	---	2.1	1.9	15	.90	14	.69	.41
30	1.9	3.1	3.8	2.6	---	3.4	1.7	6.1	1.0	2.0	1.4	.44
31	1.7	---	2.9	2.5	---	4.2	---	3.6	---	1.2	1.9	---
TOTAL	90.72	96.4	95.2	97.0	136.7	101.8	136.6	150.1	62.45	59.47	29.39	45.79
MEAN	2.93	3.21	3.07	3.13	4.88	3.28	4.55	4.84	2.08	1.92	.95	1.53
MAX	26	11	4.5	5.3	12	7.2	18	28	11	14	1.9	10
MIN	.92	1.4	1.9	1.7	2.6	2.1	1.7	1.1	.90	.23	.45	.41
CFSM	.43	.47	.45	.46	.72	.48	.67	.71	.31	.28	.14	.22
IN.	.49	.53	.52	.53	.75	.56	.74	.82	.34	.32	.16	.25

CAL YR 1980 TOTAL 2760.10 MEAN 7.54 MAX 48 MIN .23 CFSM 1.11 IN 15.05
WTR YR 1981 TOTAL 1101.62 MEAN 3.02 MAX 28 MIN .23 CFSM .44 IN 6.01

01661900 CARTER RUN NEAR MARSHALL, VA

LOCATION.--Lat 38°47'57", long 77°52'09", Fauquier County, Hydrologic Unit 02080103, on left bank 50 ft (15 m) upstream from farm road, 1.2 mi (1.9 km) downstream from Horner Run, 4.7 mi (7.6 km) south of Marshall, 6.7 mi (10.8 km) southwest of The Plains, and 9 mi (14 km) upstream from mouth.

DRAINAGE AREA.--19.5 mi^2 (50.5 km^2).

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 388.39 ft (118.381 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those above 200 ft^3/s (5.7 m^3/s), which are poor.

AVERAGE DISCHARGE.--5 years, 25.6 ft^3/s (0.725 m^3/s), 17.83 in/yr (453 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,100 ft^3/s (201 m^3/s) Oct. 9, 1976, gage height, 10.4 ft (3.17 m), from floodmarks, from rating curve extended above 190 ft^3/s (5.4 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 0.48 ft^3/s (0.014 m^3/s) Aug. 11, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 543 ft^3/s (15.4 m^3/s) at 0845 hours Feb. 11, gage height, 5.43 ft (1.655 m), no other peak above base of 200 ft^3/s (5.7 m^3/s); minimum daily, 1.4 ft^3/s (0.40 m^3/s) Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	2.9	7.0	5.9	4.5	16	7.9	26	8.5	2.5	2.9	6.8
2	2.0	2.9	6.2	5.6	65	14	8.1	36	19	3.3	2.5	5.4
3	2.5	2.7	6.6	5.9	28	12	7.3	23	15	3.3	2.5	5.0
4	2.7	3.7	5.9	5.3	9.5	10	6.5	16	14	4.0	2.4	7.5
5	2.7	4.6	5.5	5.0	6.2	17	7.4	12	11	27	2.2	6.0
6	2.3	4.1	5.5	4.5	5.2	15	10	10	8.9	8.5	2.3	4.9
7	2.0	3.5	5.5	4.0	5.2	12	8.5	9.9	9.1	5.9	2.9	4.0
8	2.0	3.5	5.3	4.0	5.5	10	8.2	7.9	6.4	4.6	2.9	5.8
9	2.0	3.5	5.3	3.9	5.2	9.7	7.8	7.5	5.6	3.7	2.7	4.1
10	2.0	3.6	6.2	3.5	4.9	9.7	9.8	6.9	20	3.1	2.3	3.3
11	1.7	3.5	5.9	3.0	200	9.1	8.6	12	12	2.9	6.4	2.9
12	1.8	3.1	5.5	2.7	50	8.7	9.6	26	7.7	2.5	66	2.6
13	2.0	3.1	5.5	2.4	29	8.5	27	13	6.5	2.2	13	2.3
14	2.1	3.1	5.3	2.4	15	8.1	20	9.6	22	2.1	5.8	2.2
15	2.1	3.3	5.2	2.8	11	7.7	17	8.3	12	2.0	4.0	12
16	2.1	3.7	5.2	3.5	9.8	8.7	13	9.5	7.6	1.7	3.3	16
17	2.1	5.4	5.5	3.5	9.6	8.7	11	7.3	5.8	1.8	2.5	9.5
18	2.7	21	5.0	3.0	9.7	8.2	12	6.4	4.6	1.9	2.1	5.9
19	4.5	8.3	5.4	3.1	14	8.1	9.3	12	4.3	1.7	2.1	4.6
20	3.5	5.2	5.0	3.5	102	7.8	9.1	18	17	1.5	2.0	3.9
21	3.4	4.4	4.1	3.8	64	7.8	7.9	11	8.9	3.2	1.8	3.9
22	3.3	4.5	4.1	4.0	41	6.8	7.5	8.2	6.2	3.3	1.8	3.5
23	3.4	4.0	4.9	4.3	67	7.0	7.7	6.5	4.6	2.0	1.7	3.4
24	3.5	30	6.0	4.4	59	7.0	16	5.8	3.8	1.7	1.6	3.0
25	31	28	5.8	4.6	37	7.0	10	5.3	3.9	2.6	1.6	2.6
26	7.5	11	4.1	4.8	26	6.7	7.9	5.0	3.5	2.9	1.6	2.6
27	4.3	8.4	4.1	5.3	21	6.8	9.8	4.6	3.3	35	1.5	2.5
28	3.5	14	4.7	5.4	18	6.5	8.5	5.0	2.8	17	1.4	2.4
29	3.4	11	7.1	5.2	---	6.3	8.3	9.2	2.6	20	52	2.0
30	3.0	7.9	6.8	4.4	---	7.2	7.5	7.2	2.4	6.6	69	2.1
31	2.9	---	6.1	4.6	---	7.9	---	18	---	4.0	14	---
TOTAL	117.1	217.9	170.3	128.3	922.3	286.0	309.2	363.1	259.0	184.5	280.8	142.7
MEAN	3.78	7.26	5.49	4.14	32.9	9.23	10.3	11.7	8.63	5.95	9.06	4.76
MAX	31	30	7.1	5.9	200	17	27	36	22	35	69	16
MIN	1.7	2.7	4.1	2.4	4.5	6.3	6.5	4.6	2.4	1.5	1.4	2.0
CFSM	.19	.37	.28	.21	1.69	.47	.53	.60	.44	.31	.47	.24
IN.	.22	.42	.32	.24	1.76	.55	.59	.69	.49	.35	.54	.27

CAL YR 1980 TOTAL 7725.7 MEAN 21.1 MAX 352 MIN 1.7 CFSM 1.08 IN 14.74
WTR YR 1981 TOTAL 3381.2 MEAN 9.26 MAX 200 MIN 1.4 CFSM .48 IN 6.45

01662000 RAPPAHANNOCK RIVER NEAR WARRENTON, VA

LOCATION.--Lat 38°41'05", long 77°54'15", Fauquier County, Hydrologic Unit 02080103, on left bank 50 ft (20 m) downstream from westbound bridge on U.S. Highway 211, 0.9 mi (1.4 km) downstream from Carter Run, 6.2 mi (10.0 km) southwest of Warrenton, 15 mi (24 km) upstream from Hazel River, and at mile 53.0 (85.3 km).

DRAINAGE AREA.--195 mi² (505 km²).

PERIOD OF RECORD.--August 1942 to current year.

REVISED RECORDS.--WSP 1302: 1944(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 312.57 ft (95.271 m) National Geodetic Vertical Datum of 1929. Oct. 8, 1942, to Dec. 17, 1944, nonrecording gage 50 ft (20 m) upstream at present datum.

REMARKS.--Records good except those for periods of doubtful gage-height record, Oct. 1 to Feb. 10 and Aug. 13 to Sept. 30, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--39 years, 195 ft³/s (5.522 m³/s), 13.58 in/yr (345 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,000 ft³/s (906 m³/s) Oct. 15, 1942, gage height, 23.5 ft (7.16 m), from floodmark, from rating curve extended above 24,000 ft³/s (680 m³/s); minimum daily, 0.70 ft³/s (0.020 m³/s) Oct. 4, 5, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,880 ft³/s (53.2 m³/s) at 1300 hours Feb. 11, gage height, 7.51 ft (2.289 m), no other peak above base of 1,800 ft³/s (51 m³/s); minimum daily, 3.0 ft³/s (0.085 m³/s) Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	28	82	49	35	169	67	99	96	24	19	100
2	19	25	74	45	150	150	72	194	120	31	17	70
3	17	26	69	38	230	136	64	127	120	62	16	58
4	17	28	64	37	160	121	57	100	155	107	15	50
5	19	37	60	34	130	138	58	87	131	132	15	90
6	18	35	57	34	105	143	80	80	107	72	20	60
7	15	32	55	35	83	116	62	79	109	54	18	45
8	14	31	54	35	73	105	56	69	84	40	20	38
9	14	30	54	33	66	100	59	62	71	31	20	36
10	13	40	59	32	62	96	69	62	161	26	17	37
11	14	38	57	28	960	93	63	117	165	23	29	31
12	13	33	52	24	444	89	65	317	99	20	202	25
13	11	30	51	22	222	85	122	192	81	17	70	21
14	11	29	49	23	180	81	119	144	213	16	45	18
15	12	30	48	26	149	76	109	124	162	14	25	17
16	13	31	47	31	117	79	90	135	109	12	17	120
17	14	33	47	36	104	87	85	105	81	11	12	90
18	14	170	45	36	101	80	88	91	66	10	10	66
19	19	110	45	35	112	75	77	117	58	8.2	8.3	45
20	26	75	40	39	946	74	72	187	73	7.3	7.2	34
21	17	60	38	46	610	74	70	138	79	16	6.3	26
22	15	51	40	50	391	69	64	109	62	16	5.5	22
23	17	43	42	50	495	68	64	91	55	11	5.2	23
24	16	50	45	49	505	67	85	79	45	11	4.7	21
25	150	290	40	45	338	64	82	71	39	19	4.2	18
26	200	130	36	45	254	62	68	64	38	23	3.8	15
27	60	90	37	49	209	61	71	61	34	150	3.3	14
28	40	120	38	46	183	61	76	63	28	63	3.0	13
29	38	130	48	42	---	58	67	88	25	72	3.3	12
30	35	98	54	41	---	62	65	88	23	35	600	12
31	31	---	50	38	---	75	---	114	---	23	250	---
TOTAL	930	1953	1577	1172	7414	2814	2246	3454	2689	1156.5	1491.8	1227
MEAN	30.0	65.1	50.9	37.8	265	90.8	74.9	111	89.6	37.3	48.1	40.9
MAX	200	290	82	50	960	169	122	317	213	150	600	120
MIN	11	25	36	22	35	58	56	61	23	7.3	3.0	12
CFSM	.15	.33	.26	.19	1.36	.47	.38	.57	.46	.19	.25	.21
IN.	.18	.37	.30	.22	1.41	.54	.43	.66	.51	.22	.28	.23

CAL YR 1980 TOTAL 69827.5 MEAN 191 MAX 2360 MIN 7.5 CFSM .98 IN 13.32
WTR YR 1981 TOTAL 28124.3 MEAN 77.1 MAX 960 MIN 3.0 CFSM .40 IN 5.37

01662800 BATTLE RUN NEAR LAUREL MILLS, VA

LOCATION.--Lat 38°39'20", long 78°04'27", Rappahannock County, Hydrologic Unit 02080103, on left bank just upstream from bridge on State Highway 729, 0.8 mi (1.3 km) upstream from mouth, and 1.0 mi (1.6 km) northeast of Laurel Mills.

DRAINAGE AREA.--27.6 mi² (71.5 km²).

PERIOD OF RECORD.--April 1958 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-72-1: 1971. WDR VA-74-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 374.62 ft (114.184 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--23 years, 26.4 ft³/s (0.748 m³/s), 12.99 in/yr (330 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,120 ft³/s (258 m³/s) Oct. 9, 1976, gage height, 13.90 ft (4.237 m), from floodmark, from rating curve extended above 2,500 ft³/s (71 m³/s) on basis of velocity-area study; no flow many days in September 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 310 ft³/s (8.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 11	0730	*419	11.9	5.28	1.609	May 11	2330	402	11.4	5.21	1.588
Feb. 20	0330	402	11.4	5.21	1.588						

Minimum discharge, 0.06 ft³/s (0.002 m³/s) Aug. 27, 28, 29, 30, gage height, 1.98 ft (0.604 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	4.4	9.5	5.6	5.9	21	9.5	17	9.1	4.4	1.5	8.3
2	2.7	4.4	9.1	5.2	39	19	9.9	13	17	7.7	1.3	2.2
3	2.4	4.4	8.4	5.2	18	18	8.7	9.9	13	13	1.7	2.2
4	2.8	5.3	7.5	5.2	14	16	8.3	8.5	15	16	3.0	3.0
5	2.5	6.2	7.4	2.9	9.5	19	9.8	7.9	12	8.9	3.2	4.7
6	2.4	4.6	7.4	3.5	7.8	17	10	7.8	13	7.7	2.2	2.8
7	2.0	4.6	7.2	5.3	8.1	15	8.3	7.6	13	5.9	2.6	2.0
8	2.0	4.6	7.1	4.7	6.8	14	8.0	6.6	9.4	4.6	2.4	2.1
9	2.0	5.3	7.2	3.7	6.8	14	9.0	6.3	8.4	3.8	1.8	2.9
10	2.0	8.1	7.4	3.6	6.8	13	8.9	7.3	25	3.8	1.3	1.8
11	2.0	4.6	6.6	2.9	140	13	8.4	32	15	3.4	1.6	1.4
12	1.9	4.2	6.5	2.4	49	12	9.6	60	12	2.8	7.0	1.1
13	1.3	4.2	6.5	2.5	37	12	18	21	10	2.7	3.5	.95
14	1.3	4.2	6.2	4.3	24	11	13	16	12	2.6	2.1	.90
15	1.4	4.6	6.1	6.0	20	11	11	19	9.7	2.0	1.6	2.7
16	1.9	4.6	6.3	7.0	17	12	10	20	7.9	2.0	1.4	9.9
17	1.9	6.1	6.0	7.1	14	11	11	15	6.8	2.4	1.0	5.0
18	2.2	25	6.0	7.1	15	11	10	13	6.1	1.7	.74	2.9
19	3.7	11	6.2	7.4	18	11	8.8	21	6.1	1.5	.71	2.2
20	3.0	7.5	4.8	8.8	155	11	9.0	23	7.4	1.4	.70	1.7
21	2.7	6.2	3.8	9.4	63	10	8.2	18	7.0	2.8	.53	1.4
22	2.8	5.9	3.9	8.7	44	10	8.2	15	6.6	1.7	.51	1.4
23	2.8	5.6	6.1	8.1	58	10	8.6	13	5.1	1.2	.48	2.8
24	2.8	25	7.0	7.3	51	9.8	8.7	11	4.6	3.6	.30	1.3
25	23	21	4.8	7.0	38	9.5	7.7	9.9	4.3	4.8	.17	.81
26	9.5	12	3.5	5.9	31	9.3	7.4	8.9	4.3	3.3	.10	.84
27	5.6	11	4.5	6.3	26	9.4	8.4	11	3.4	4.6	.10	.78
28	4.8	16	6.1	6.4	24	8.8	7.6	14	3.2	5.8	.08	1.6
29	4.6	13	8.3	6.2	---	9.0	7.1	9.4	3.0	4.8	.08	1.1
30	4.4	11	7.7	5.3	---	10	8.2	8.3	3.0	2.3	.31	.71
31	4.4	---	6.2	6.2	---	10	---	13	---	1.8	.95	---
TOTAL	111.5	254.6	201.3	177.2	946.7	386.8	279.3	463.4	272.4	135.0	44.96	73.49
MEAN	3.60	8.49	6.49	5.72	33.8	12.5	9.31	14.9	9.08	4.35	1.45	2.45
MAX	23	25	9.5	9.4	155	21	18	60	25	16	7.0	9.9
MIN	1.3	4.2	3.5	2.4	5.9	8.8	7.1	6.3	3.0	1.2	.08	.71
CFSM	.13	.31	.24	.21	1.23	.45	.34	.54	.33	.16	.05	.09
IN.	.15	.34	.27	.24	1.28	.52	.38	.62	.37	.18	.06	.10

CAL YR 1980 TOTAL 10165.50 MEAN 27.8 MAX 476 MIN 1.2 CFSM 1.01 IN 13.70
WTR YR 1981 TOTAL 3346.65 MEAN 9.17 MAX 155 MIN .08 CFSM .33 IN 4.51

01663500 HAZEL RIVER AT RIXEYVILLE, VA

LOCATION.--Lat 38°35'30", long 77°57'55", Culpeper County, Hydrologic Unit 02080103, on right bank at downstream side of bridge on State Highway 229, 0.4 mi (0.6 km) upstream from Waterford Run, 1.1 mi (1.8 km) northeast of Rixeyville, 2.8 mi (4.5 km) downstream from Thornton River, and 9.1 mi (14.6 km) upstream from mouth.

DRAINAGE AREA.--287 mi² (743 km²).

PERIOD OF RECORD.--August 1942 to current year.

REVISED RECORDS.--WSP 971: 1942. WSP 1622: 1957-58. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 288.30 ft (87.874 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of doubtful gage-height record, Aug. 20 to Sept. 30, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--39 years, 340 ft^3/s (9.629 m^3/s), 16.09 in/yr (409 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 60,000 ft^3/s (1,700 m^3/s) Oct. 15, 1942, gage height, 31.8 ft (9.69 m), from rating curve extended above 27,000 ft^3/s (760 m^3/s); minimum, 1.1 ft^3/s (0.031 m^3/s) Sept. 10-13, 1966, gage height, 1.69 ft (0.515 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 26, 1937, reached a stage of 28.4 ft (8.66 m), from floodmarks, discharge, 43,500 ft^3/s (1,230 m^3/s), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,710 ft^3/s (76.7 m^3/s) Feb. 20, gage height, 9.57 ft (2.917 m), no peak above base of 3,300 ft^3/s (93 m^3/s); minimum daily, 12 ft^3/s (0.34 m^3/s) Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	44	122	80	54	266	115	217	180	47	52	92
2	42	42	110	71	211	240	117	273	344	79	44	109
3	39	40	105	58	309	218	108	215	322	134	40	91
4	38	43	98	58	208	196	100	184	320	200	56	70
5	40	56	93	53	170	209	102	167	294	275	77	141
6	39	55	89	53	140	209	124	156	245	169	54	109
7	36	50	86	54	120	180	106	152	252	140	50	77
8	34	46	83	55	110	165	100	136	194	109	52	64
9	33	46	82	51	102	158	103	125	168	87	50	61
10	33	65	88	50	95	151	111	124	222	71	42	60
11	35	71	85	46	1170	148	104	223	260	81	38	49
12	28	56	80	39	803	144	108	502	177	75	100	42
13	24	51	79	34	392	141	215	342	152	58	138	37
14	23	49	77	34	336	137	222	272	159	51	77	33
15	22	50	74	39	267	130	198	239	155	45	52	30
16	23	53	73	47	207	132	170	265	130	39	43	57
17	32	59	72	57	189	136	163	202	109	39	37	92
18	33	250	69	57	183	132	169	172	94	40	31	76
19	49	179	70	54	191	131	152	213	87	35	27	62
20	49	115	64	59	1530	128	145	358	88	30	24	52
21	40	91	60	69	901	124	140	282	120	28	21	45
22	37	80	62	77	631	118	130	224	121	28	19	39
23	36	73	66	78	623	117	130	188	101	26	17	41
24	39	119	70	77	635	115	134	167	83	30	18	38
25	170	385	64	70	492	112	128	149	71	164	16	32
26	239	187	57	70	397	109	118	135	66	102	15	27
27	99	135	58	76	332	108	123	132	57	88	13	25
28	68	175	61	73	290	107	138	141	53	98	12	23
29	57	193	74	67	---	103	121	271	49	185	13	22
30	50	147	87	62	---	110	118	208	46	108	123	22
31	46	---	80	60	---	128	---	185	---	68	86	---
TOTAL	1573	3005	2438	1828	11088	4602	4012	6619	4719	2729	1437	1718
MEAN	50.7	100	78.6	59.0	396	148	134	214	157	88.0	46.4	57.3
MAX	239	385	122	80	1530	266	222	502	344	275	138	141
MIN	22	40	57	34	54	103	100	124	46	26	12	22
CFSM	.18	.35	.27	.21	1.38	.52	.47	.75	.55	.31	.16	.20
IN.	.20	.39	.32	.24	1.44	.60	.52	.86	.61	.35	.19	.22

CAL YR 1980 TOTAL 132198 MEAN 361 MAX 3890 MIN 22 CFSM 1.26 IN 17.13
WTR YR 1981 TOTAL 45768 MEAN 125 MAX 1530 MIN 12 CFSM .44 IN 5.93

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA

LOCATION.--Lat 38°31'50", long 77°48'50", Fauquier County, Hydrologic Unit 02080103, on left bank 80 ft (20 m) upstream from bridge on alternate U.S. Highway 29, at Remington, 0.3 mi (0.5 km) upstream from Tinpot Run, 0.4 mi (0.6 km) downstream from Ruffans Run, 2.5 mi (4.0 km) downstream from Hazel River, and at mile 35.2 (56.6 km).

DRAINAGE AREA.--620 mi^2 (1,606 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 252.53 ft (76.971 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 21, 1951, nonrecording gage at bridge 80 ft (20 m) downstream at same datum.

REMARKS.--Records good except those for period of doubtful gage-height record, Feb. 11 to June 18, which are fair. Gage-height telemeter at station.

AVERAGE DISCHARGE.--39 years, 676 ft^3/s (19.14 m^3/s), 14.81 in/yr (376 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 90,000 ft^3/s (2,550 m^3/s) Oct. 16, 1942, gage height, 30.0 ft (9.14 m), from floodmarks, from rating curve extended above 43,000 ft^3/s (1,200 m^3/s) on basis of slope-area determination of peak flow; minimum, 2.8 ft^3/s (0.079 m^3/s) Sept. 13, 1966, gage height, 2.31 ft (0.704 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum flood since at least 1828, that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge recorded, 4,970 ft^3/s (141 m^3/s) Aug. 30, gage height, 9.93 ft (3.027 m) but may have been higher during period of doubtful gage-height record Feb. 20, no peak above base of 6,000 ft^3/s (170 m^3/s); minimum, 15 ft^3/s (0.42 m^3/s) Aug. 29, 30, gage height, 2.63 ft (0.802 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	89	267	161	111	559	219	329	338	97	87	324
2	67	84	238	151	259	507	215	541	448	117	70	242
3	67	84	222	120	851	453	203	448	571	189	123	200
4	63	84	207	120	519	401	185	343	491	324	92	154
5	65	103	196	108	416	416	182	306	519	507	103	196
6	65	111	185	108	333	464	230	284	442	319	92	242
7	61	103	178	111	263	396	211	263	416	259	79	168
8	56	97	175	114	230	343	185	250	366	203	77	132
9	52	95	178	105	211	319	185	222	302	161	79	117
10	52	103	189	103	196	306	211	211	324	135	70	120
11	50	126	182	95	2180	293	203	275	565	123	59	103
12	50	106	171	79	1980	280	203	739	391	126	189	79
13	46	95	164	70	670	271	362	668	297	100	347	70
14	44	92	158	70	520	259	458	485	329	84	182	61
15	41	95	154	79	440	246	381	416	442	77	108	54
16	42	100	151	97	360	246	329	442	338	67	79	138
17	46	106	151	117	340	254	293	391	271	59	63	248
18	58	339	144	117	338	254	297	324	219	56	52	194
19	84	411	144	111	352	246	280	333	192	52	42	139
20	84	259	129	120	2850	238	259	588	242	46	39	101
21	82	189	123	141	2250	234	254	582	297	41	35	82
22	65	161	126	158	1340	230	242	453	284	48	30	71
23	58	148	135	161	1310	215	234	381	222	48	26	73
24	61	182	144	158	1520	215	242	333	185	48	26	68
25	176	780	129	144	1110	207	254	297	161	164	24	57
26	566	464	114	144	857	200	230	263	148	164	21	49
27	242	306	117	158	707	192	222	215	138	200	20	45
28	148	347	123	151	613	192	246	222	123	271	17	42
29	117	421	148	135	---	185	226	319	111	333	16	41
30	106	324	175	132	---	192	207	357	103	211	1930	39
31	97	---	161	126	---	226	---	293	---	126	909	---
TOTAL	2874	6004	5078	3764	23126	9039	7448	11573	9275	4755	5086	3649
MEAN	92.7	200	164	121	826	292	248	373	309	153	164	122
MAX	566	780	267	161	2850	559	458	739	571	507	1930	324
MIN	41	84	114	70	111	185	182	211	103	41	16	39
CFSM	.15	.32	.27	.20	1.33	.47	.40	.60	.50	.25	.27	.20
IN.	.17	.36	.30	.23	1.39	.54	.45	.69	.56	.29	.31	.22

CAL YR 1980 TOTAL 253363 MEAN 692 MAX 7380 MIN 41 CFSM 1.12 IN 15.20
WTR YR 1981 TOTAL 91671 MEAN 251 MAX 2850 MIN 16 CFSM .41 IN 5.50

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1951 to September 1956, October 1965 to current year.
WATER TEMPERATURES: May 1951 to September 1956, October 1965 to September 1976, October 1977 to current year.
SUSPENDED-SEDIMENT DISCHARGE: April 1951 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 150 micromhos Sept. 3, 1974; minimum daily, 24 micromhos July 6, 1975.
WATER TEMPERATURES: Maximum, 32.5°C July 19, 1980, July 18, 21, 1981; minimum, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,730 mg/L Mar. 12, 1963; minimum daily mean, 1 mg/L on many days during each year.
SEDIMENT LOADS: Maximum daily, 55,600 tons (50,400 tonnes) Sept. 26, 1975; minimum daily, 0.11 ton (0.10 tonne) Sept. 30, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 110 micromhos Apr. 24, May 2; minimum daily, 60 micromhos May 16.
WATER TEMPERATURES: Maximum daily, 32.5°C July 18, 21; minimum observed, 0.0°C Jan. 8.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 799 mg/L Feb. 11; minimum daily mean, 1 mg/L Nov. 22, Dec. 13-15, Sept. 26, 30.
SEDIMENT LOADS: Maximum daily, 5,790 tons (5,250 tonnes) Feb. 11; minimum daily, 0.11 ton (0.10 tonne) Sept. 30.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT												
03...	1345	70	82	6.6	17.5	5	25	2	6.7	2.1	3.8	2.2
NOV												
24...	1050	144	72	7.2	5.0	10	22	2	5.6	2.0	3.8	2.0
JAN												
08...	1105	108	80	7.4	.0	5	24	1	6.5	2.0	3.8	1.4
FEB												
20...	1145	3710	63	7.4	7.5	100	19	6	4.8	1.8	3.4	2.5
APR												
14...	0900	469	72	6.8	11.5	15	22	3	6.0	1.7	2.8	1.6
MAY												
27...	0920	211	68	7.0	20.5	<5	21	0	5.6	1.8	5.0	1.6
JUL												
22...	0900	48	88	7.3	24.0	<5	31	5	8.4	2.5	4.1	2.1
SEP												
17...	0915	246	89	7.2	19.0	7	28	4	7.1	2.5	3.7	2.6

< Actual value is known to be less than the value shown.

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)
OCT											
03...	23	4.5	4.3	.1	8.6	52	46	--	--	--	100
NOV											
24...	20	5.2	3.7	.1	12	52	47	.010	.33	.010	160
JAN											
08...	23	5.9	5.5	.1	13	54	52	<.010	.60	<.010	90
FEB											
20...	13	6.8	4.4	<.1	11	55	43	<.010	.49	.020	180
APR											
14...	19	5.4	3.8	<.1	14	49	49	<.010	.32	.020	1900
MAY											
27...	21	4.0	3.2	<.1	11	48	45	<.010	.37	<.010	110
JUL											
22...	26	4.4	4.3	.1	7.2	65	49	<.010	.13	<.010	90
SEP											
17...	24	4.9	4.9	<.1	8.7	64	49	.010	.46	.010	160

< Actual value is known to be less than the value shown.

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	88	78	---	82	66	72	70	78	82	---	84
2	81	86	70	---	80	68	63	110	76	80	89	81
3	81	83	75	---	75	68	66	88	73	80	91	85
4	83	75	70	---	72	74	71	70	75	72	86	83
5	80	85	73	---	70	74	72	70	75	78	79	85
6	80	83	73	---	70	67	72	73	70	71	83	83
7	80	82	73	---	70	72	70	65	70	71	97	90
8	100	82	73	80	70	70	70	68	71	71	76	90
9	79	82	85	---	70	70	72	70	72	71	82	85
10	84	87	85	---	88	65	68	65	70	75	98	85
11	84	80	83	---	85	72	64	68	77	70	96	85
12	84	78	75	---	73	72	71	90	77	73	96	85
13	80	78	80	---	70	66	66	93	78	72	77	83
14	78	85	78	---	75	62	71	65	82	81	80	83
15	75	87	78	---	69	62	68	65	82	82	74	97
16	77	73	75	---	68	66	68	60	78	84	83	98
17	82	99	78	---	73	66	68	70	77	85	84	85
18	72	88	80	---	68	71	68	73	81	83	82	87
19	75	73	85	---	73	64	63	70	82	86	86	85
20	80	83	83	---	71	66	63	70	95	76	84	85
21	87	70	88	---	73	66	63	70	82	83	85	86
22	87	70	75	---	75	64	100	95	82	88	85	89
23	93	73	85	---	78	64	70	90	82	---	85	93
24	93	70	85	---	72	63	110	100	82	---	86	92
25	86	70	80	---	70	66	70	95	82	---	85	91
26	91	68	80	---	68	64	70	85	83	---	87	93
27	85	73	78	---	71	76	70	100	70	---	80	94
28	80	75	80	---	82	66	73	68	70	---	92	91
29	85	75	78	---	---	62	68	70	68	---	90	92
30	89	70	68	---	---	66	76	90	71	---	75	93
31	83	---	68	---	---	66	---	70	---	---	72	---
MEAN	83	79	78	80	74	67	71	78	77	78	85	88

WTR YR 1981 MEAN 78 MAX 110 MIN 60

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16.0	13.5	11.5	---	.5	9.5	13.5	17.0	20.0	26.5	---	23.5
2	17.0	13.5	11.5	---	.5	7.0	12.5	17.5	20.5	25.5	29.0	23.5
3	18.0	11.5	11.5	---	.5	8.5	11.5	16.5	21.5	26.5	25.0	22.5
4	16.0	10.5	11.5	---	1.5	6.5	12.5	17.0	22.5	24.5	29.0	21.5
5	16.0	12.5	12.5	---	1.5	5.5	12.5	16.0	25.5	23.5	28.0	22.5
6	17.0	13.5	10.5	---	.5	6.5	13.5	15.0	22.5	25.5	27.0	21.5
7	18.0	13.5	11.5	---	1.0	7.5	15.0	15.0	21.5	25.5	26.0	23.5
8	18.0	15.0	11.5	.0	.5	6.5	16.0	16.0	25.5	29.5	27.0	22.5
9	19.0	14.5	10.5	---	1.0	8.5	16.0	16.5	28.5	30.5	26.0	23.5
10	17.0	15.0	9.0	---	5.0	6.5	17.0	17.0	25.5	30.5	27.0	24.5
11	16.0	13.5	9.0	---	5.0	9.5	17.0	16.0	25.5	30.5	26.0	26.5
12	15.0	12.5	7.0	---	7.0	7.5	16.0	18.0	26.5	31.5	26.0	26.5
13	15.0	11.5	6.0	---	7.0	8.5	16.0	15.5	28.5	31.5	25.0	26.5
14	16.0	11.5	6.0	---	8.0	9.5	16.0	15.0	28.5	31.5	26.0	27.5
15	17.0	9.0	5.0	---	10.0	8.5	17.0	16.5	30.5	31.5	26.0	28.5
16	16.0	10.5	6.0	---	9.0	7.5	16.0	16.0	31.5	30.5	25.0	22.5
17	16.0	6.0	5.0	---	8.0	7.5	16.0	15.0	28.5	30.5	25.0	21.5
18	15.0	10.5	6.0	---	10.5	6.5	17.0	16.0	29.5	32.5	26.0	21.5
19	14.5	10.0	5.0	---	9.0	8.5	16.0	16.0	28.5	31.5	24.5	23.5
20	14.5	5.0	4.0	---	8.0	9.5	17.0	15.0	26.5	31.5	25.0	23.5
21	15.0	10.5	5.0	---	9.0	10.5	18.0	16.0	27.5	32.5	27.0	22.5
22	15.0	7.0	4.5	---	10.5	11.5	19.5	18.5	28.5	---	26.0	21.5
23	16.0	5.0	4.5	---	10.5	12.5	19.5	19.5	27.5	---	24.0	20.5
24	14.5	5.0	4.5	---	11.5	10.5	20.5	25.0	26.5	---	26.0	19.0
25	14.5	6.0	4.5	---	12.5	12.5	20.5	26.0	25.5	---	26.0	19.0
26	15.0	7.0	2.5	---	7.5	12.5	19.5	28.0	24.5	---	26.0	18.0
27	17.0	9.0	2.5	---	9.5	12.5	19.0	24.5	25.5	---	27.0	18.0
28	15.0	9.0	1.5	---	10.5	13.5	18.0	23.5	25.5	---	25.0	19.0
29	12.5	7.0	1.5	---	---	13.5	17.0	25.0	26.5	---	24.5	18.0
30	11.5	6.0	1.5	---	---	14.5	18.0	24.5	25.5	---	25.0	19.0
31	12.5	---	1.5	---	---	14.5	---	23.5	---	---	24.5	---
MEAN	15.5	10.0	6.5	.0	6.5	9.5	16.5	18.5	26.0	29.0	26.0	22.5

WTR YR 1981 MEAN 16.5 MAX 32.5 MIN .0

01664000 RAPPAHANNOCK RIVER AT REMINGTON, VA--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	5	.85	4	.96	6	4.3	12	5.2	24	7.2	17	26
2	9	1.6	7	1.6	5	3.2	8	3.3	70	49	16	22
3	9	1.6	10	2.3	6	3.6	8	2.6	163	375	16	20
4	7	1.2	9	2.0	8	4.5	8	2.6	64	90	18	19
5	5	.88	7	1.9	4	2.1	7	2.0	50	56	13	15
6	4	.70	8	2.4	2	1.0	7	2.0	52	47	9	11
7	3	.49	9	2.5	3	1.4	7	2.1	21	15	10	11
8	7	1.1	8	2.1	2	.95	9	2.8	3	1.9	12	11
9	5	.70	7	1.8	6	2.9	8	2.3	32	18	29	25
10	4	.56	8	2.2	8	4.1	7	1.9	38	20	17	14
11	5	.68	9	3.1	2	.98	6	1.5	799	5790	9	7.1
12	6	.81	8	2.3	3	1.4	6	1.3	320	1710	7	5.3
13	5	.62	7	1.8	1	.44	5	.95	150	271	5	3.7
14	2	.24	4	.99	1	.43	5	.95	40	56	6	4.2
15	3	.33	9	2.3	1	.42	4	.85	11	13	6	4.0
16	4	.45	8	2.2	2	.82	7	1.8	13	13	6	4.0
17	3	.37	9	2.6	2	.82	9	2.8	18	17	6	4.1
18	4	.63	27	25	4	1.6	10	3.2	24	22	6	4.1
19	7	1.6	30	33	3	1.2	8	2.4	80	76	10	6.6
20	5	1.1	11	7.7	9	3.1	11	3.6	508	4550	3	1.9
21	6	1.3	3	1.5	5	1.7	13	4.9	60	364	4	2.5
22	8	1.4	1	.43	2	.68	12	5.1	55	199	4	2.5
23	5	.78	3	1.2	4	1.5	15	6.5	98	347	5	2.9
24	4	.66	4	2.0	19	7.4	11	4.7	95	390	10	5.8
25	7	3.3	10	21	28	9.8	12	4.7	62	186	5	2.8
26	20	31	4	5.0	23	7.1	9	3.5	43	99	11	5.9
27	3	2.0	4	3.3	25	7.9	17	7.3	34	65	12	6.2
28	3	1.2	3	2.8	39	13	15	6.1	25	41	11	5.7
29	4	1.3	6	6.8	36	14	15	5.5	---	---	9	4.5
30	5	1.4	5	4.4	51	24	18	6.4	---	---	8	4.1
31	3	.79	---	---	17	7.4	20	6.8	---	---	9	5.5
TOTAL	---	61.64	---	149.18	---	133.74	---	107.65	---	14888.1	---	267.4

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	12	7.1	21	19	22	20	7	1.8	11	2.6	40	35
2	11	6.4	24	35	40	48	5	1.6	8	1.5	60	39
3	13	7.1	19	23	30	46	5	2.6	120	40	10	5.4
4	11	5.5	17	16	26	34	27	24	38	9.4	6	2.5
5	11	5.4	16	13	29	41	31	42	27	7.5	36	19
6	11	6.8	14	11	23	27	26	22	16	4.0	43	28
7	12	6.8	8	5.7	31	35	27	19	14	3.0	29	13
8	4	2.0	4	2.7	19	19	17	9.3	12	2.5	14	5.0
9	7	3.5	4	2.4	7	5.7	8	3.5	14	3.0	8	2.5
10	12	6.8	13	7.4	29	25	6	2.2	14	2.6	6	1.9
11	13	7.1	16	12	50	76	6	2.0	10	1.6	5	1.4
12	14	7.7	68	136	30	32	30	10	53	27	2	.43
13	16	16	35	63	30	24	11	3.0	76	71	2	.38
14	18	22	12	16	31	28	8	1.8	29	14	2	.33
15	10	10	7	7.9	23	27	8	1.7	8	2.3	3	.44
16	7	6.2	25	30	10	9.1	9	1.6	14	3.0	8	3.0
17	7	5.5	14	15	9	6.6	8	1.3	19	3.2	17	11
18	7	5.6	4	3.5	14	8.3	13	2.0	10	1.4	11	5.8
19	12	9.1	35	31	9	4.7	8	1.1	13	1.5	5	1.9
20	15	10	100	159	120	108	6	.75	13	1.4	3	.82
21	15	10	30	47	88	71	8	.89	8	.76	2	.44
22	13	8.5	19	23	16	12	8	1.0	8	.65	8	1.5
23	14	8.8	15	15	12	7.2	8	1.0	8	.56	7	1.4
24	12	7.8	12	11	12	6.0	10	1.3	7	.49	4	.73
25	13	8.9	11	8.8	9	3.9	28	12	6	.39	2	.31
26	11	6.8	10	7.1	7	2.8	23	10	8	.45	1	.13
27	9	5.4	14	8.1	14	5.2	36	19	9	.49	3	.36
28	8	5.3	14	8.4	12	4.0	45	33	8	.37	3	.34
29	9	5.5	21	18	9	2.7	50	45	4	.17	2	.22
30	10	5.6	24	23	7	1.9	35	20	138	719	1	.11
31	---	---	18	14	---	---	18	6.1	115	282	---	---
TOTAL	---	229.2	---	792.0	---	741.1	---	302.54	---	1207.83	---	182.34

TOTAL LOAD FOR YEAR: 19062.72 TONS.

01665000 MOUNTAIN RUN NEAR CULPEPER, VA

LOCATION.--Lat 38°28'50", long 78°03'10", Culpeper County, Hydrologic Unit 02080103, on left bank 30 ft (9 m) upstream from bridge on State Highway 641, 2.4 mi (3.9 km) upstream from Bond Branch, and 3.0 mi (4.8 km) west of Culpeper.

DRAINAGE AREA.--15.9 mi² (41.2 km²), of which 10.9 mi² (28.2 km²) are above flood-detention structures.

PERIOD OF RECORD.--September 1949 to current year.

REVISED RECORDS.--WSP 1332: 1950-51. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 389.46 ft (118.707 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some regulation since 1959 by two reservoirs, combined flood storage, 2,240 acre-ft (2.76 hm³); 531 acre-ft (0.655 hm³) additional storage used for low-water regulation for municipal supply for town of Culpeper. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--32 years, 16.4 ft³/s (0.464 m³/s), 14.01 in/yr (356 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,440 ft³/s (154 m³/s) Aug. 18, 1955, from rating curve extended above 910 ft³/s (26 m³/s) on basis of slope-area measurement of peak flow; maximum gage height, 11.20 ft (3.414 m) Dec. 4, 1950; minimum discharge, 0.09 ft³/s (0.003 m³/s) Sept. 30, Oct. 1, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 207 ft³/s (5.86 m³/s) Feb. 11, gage height, 4.26 ft (1.298 m), no peak above base of 300 ft³/s (8.5 m³/s); minimum, 1.3 ft³/s (0.037 m³/s) Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	4.6	11	6.5	5.7	13	9.7	18	6.5	2.8	3.1	6.1
2	4.9	4.2	9.7	6.3	30	12	9.1	15	17	2.9	2.8	3.5
3	7.2	4.6	10	6.7	19	11	8.3	10	25	3.9	2.5	3.5
4	6.9	5.7	9.1	6.1	11	10	7.5	8.3	47	8.6	2.9	5.3
5	6.7	6.5	8.9	5.3	9.4	14	8.3	7.2	25	7.5	2.9	6.5
6	6.7	6.1	8.6	4.9	7.7	13	10	6.9	15	6.7	2.9	5.9
7	6.7	6.3	8.9	5.3	7.5	11	8.9	6.7	12	5.7	2.9	6.1
8	6.7	6.9	8.6	5.1	7.7	10	8.3	5.9	8.9	4.2	3.4	5.9
9	6.7	6.9	8.9	4.7	7.7	10	8.6	5.5	7.2	3.5	3.2	5.7
10	6.5	8.3	9.1	4.7	7.2	9.7	9.1	6.1	17	12	2.9	4.6
11	6.5	6.9	8.9	5.1	138	9.7	8.6	14	13	18	3.7	3.4
12	6.5	6.5	8.3	5.1	65	9.1	9.1	24	8.6	8.0	24	3.2
13	4.2	6.3	8.3	4.9	24	9.1	19	13	6.9	5.3	9.7	3.2
14	2.8	6.5	8.0	5.1	16	8.9	15	9.4	6.3	3.9	5.3	3.4
15	2.9	7.5	7.2	5.7	13	8.3	13	9.4	5.9	3.1	3.9	3.9
16	2.8	5.7	7.5	5.9	12	9.1	11	11	5.1	2.8	3.4	17
17	2.8	9.3	7.2	6.1	12	8.9	10	8.6	4.0	2.8	2.8	15
18	8.8	32	6.9	5.9	12	9.1	10	7.5	3.9	2.5	2.5	9.1
19	5.7	16	7.2	5.9	16	9.1	8.6	20	3.7	2.5	2.5	6.3
20	4.2	11	6.9	6.7	99	9.1	8.9	29	17	2.4	2.2	4.7
21	3.9	9.4	6.3	7.2	47	8.9	8.0	18	20	2.5	2.2	4.4
22	4.2	8.3	6.3	7.5	29	8.3	7.7	12	22	2.5	2.2	3.9
23	4.6	8.0	7.2	7.5	31	8.6	8.0	9.1	11	2.4	1.9	3.2
24	4.7	24	7.7	7.2	27	8.3	8.0	7.7	6.7	6.2	1.6	3.1
25	25	29	7.5	6.7	20	8.0	7.2	6.7	5.3	7.7	1.8	3.2
26	11	16	6.3	6.9	16	7.7	6.7	5.7	4.0	6.5	1.9	3.1
27	6.1	13	5.9	6.9	14	7.7	8.0	5.3	3.2	5.5	1.9	3.4
28	5.3	20	6.3	6.9	13	7.7	8.3	6.5	3.1	17	1.6	3.1
29	4.9	15	6.9	6.5	---	7.5	7.7	7.2	2.8	21	1.8	2.5
30	4.2	12	7.2	6.3	---	9.7	8.6	6.3	2.6	6.7	31	2.4
31	4.4	---	6.9	5.9	---	11	---	6.7	---	4.0	13	---
TOTAL	188.5	322.5	243.7	187.5	716.9	297.5	279.2	326.7	335.7	191.1	150.4	154.6
MEAN	6.08	10.8	7.86	6.05	25.6	9.60	9.31	10.5	11.2	6.16	4.85	5.15
MAX	25	32	11	7.5	138	14	19	29	47	21	31	17
MIN	2.8	4.2	5.9	4.7	5.7	7.5	6.7	5.3	2.6	2.4	1.6	2.4
CFSM	.38	.68	.49	.38	1.61	.60	.59	.66	.70	.39	.31	.32
IN.	.44	.75	.57	.44	1.68	.70	.65	.76	.79	.45	.35	.36

CAL YR 1980 TOTAL 6344.7 MEAN 17.3 MAX 170 MIN 2.8 CFSM 1.09 IN 14.84
WTR YR 1981 TOTAL 3394.3 MEAN 9.30 MAX 138 MIN 1.6 CFSM .59 IN 7.94

01665500 RAPIDAN RIVER NEAR RUCKERSVILLE, VA

LOCATION.--Lat 38°16'50", long 78°20'25", Madison County, Hydrologic Unit 02080103, on left bank 250 ft (76 m) downstream from bridge on U.S. Highway 29, 0.2 mi (0.3 km) downstream from Elk Run, 1.7 mi (2.7 km) upstream from White Run, 3.6 mi (5.8 km) northeast of Ruckersville, and at mile 63.5 (102.2 km).

DRAINAGE AREA.--114 mi² (295 km²).

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1171: 1944-45(M). WSP 1382: 1943(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 439.44 ft (133.941 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for periods of beaver dam construction, Oct. 1 to Nov. 25 and Aug. 1 to Sept. 30, which are fair. Diversion 0.4 mi (0.6 km) above station since 1973 by Rapidan Service Authority for municipal supply of Greene County and town of Stanardsville has averaged less than 0.25 ft³/s (0.007 m³/s). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--39 years, 148 ft³/s (4.191 m³/s), 17.63 in/yr (448 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,700 ft³/s (869 m³/s) Oct. 15, 1942, gage height, 20.8 ft (6.34 m), from floodmark in gage house, from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of slope-area measurement at gage height 17.78 ft (5.419 m); minimum daily, 0.90 ft³/s (0.025 m³/s) Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,400 ft³/s (40 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	0200	1780	50.4	5.05	1.539	July 5	1800	2410	68.3	5.95	1.814
July 2	0800	*2490	70.5	6.06	1.847						

Minimum daily, 8.0 ft³/s (0.23 m³/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	14	47	27	16	170	57	159	115	92	53	52
2	19	14	44	27	112	152	56	128	217	779	50	30
3	16	14	43	23	59	135	51	112	313	423	53	40
4	14	24	40	20	43	123	48	103	502	879	63	60
5	13	21	38	16	33	129	57	96	540	972	56	69
6	14	19	37	20	34	114	65	92	420	746	68	50
7	12	18	36	25	33	100	56	87	335	459	70	44
8	11	18	34	17	33	93	55	77	252	319	64	40
9	11	19	36	20	26	88	60	72	207	241	53	36
10	9.6	23	37	22	29	85	64	75	225	212	48	31
11	9.6	19	34	14	646	81	59	173	181	192	47	27
12	10	18	34	15	378	76	62	200	149	148	77	23
13	9.8	18	34	13	239	73	90	162	134	127	72	19
14	9.6	18	34	18	176	69	83	143	142	113	50	18
15	10	18	36	20	140	66	89	141	114	95	38	26
16	11	19	33	23	119	66	86	135	106	88	32	110
17	14	22	32	19	109	66	93	110	104	85	28	65
18	18	54	32	22	102	65	97	102	95	73	25	45
19	26	37	32	24	128	64	88	183	66	65	23	35
20	20	29	28	24	998	62	89	216	147	97	20	30
21	17	25	22	28	521	58	84	186	105	77	18	27
22	16	23	24	27	387	56	79	161	114	57	16	25
23	15	21	32	24	365	55	78	141	72	50	14	23
24	16	40	33	22	356	53	82	125	58	84	13	21
25	55	106	23	22	306	50	73	109	51	115	12	20
26	50	64	20	23	258	48	69	98	49	73	11	19
27	35	53	28	23	219	48	84	92	40	63	9.6	18
28	25	66	32	22	191	47	78	156	36	128	9.0	17
29	18	63	34	20	---	46	71	155	33	140	8.0	16
30	16	53	32	17	---	65	82	129	31	75	36	15
31	15	---	28	13	---	68	---	123	---	61	32	---
TOTAL	550.6	950	1029	650	6056	2471	2185	4041	4953	7128	1168.6	1051
MEAN	17.8	31.7	33.2	21.0	216	79.7	72.8	130	165	230	37.7	35.0
MAX	55	106	47	28	998	170	97	216	540	972	77	110
MIN	9.6	14	20	13	16	46	48	72	31	50	8.0	15
CFSM	.16	.28	.29	.18	1.90	.70	.64	1.14	1.45	2.02	.33	.31
IN.	.18	.31	.34	.21	1.98	.81	.71	1.32	1.62	2.33	.38	.34

CAL YR 1980 TOTAL 54183.8 MEAN 148 MAX 2570 MIN 8.0 CFSM 1.30 IN 17.68
WTR YR 1981 TOTAL 32233.2 MEAN 88.3 MAX 998 MIN 8.0 CFSM .78 IN 10.52

01666500 ROBINSON RIVER NEAR LOCUST DALE, VA

LOCATION.--Lat 38°19'30", long 78°05'45", Madison County, Hydrologic Unit 02080103, on right bank 100 ft (30 m) upstream from bridge on State Highway 614, 1.1 mi (1.8 km) upstream from Great Run, 1.7 mi (2.7 km) upstream from mouth, 2.0 mi (3.2 km) southeast of Locust Dale, and 3.4 mi (5.5 km) downstream from Crooked Run.

DRAINAGE AREA.--179 mi^2 (464 km^2).

PERIOD OF RECORD.--July 1943 to current year. Prior to October 1965, published as Robertson River near Locust Dale.

REVISED RECORDS.--WSP 1171: 1948(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 283.70 ft (86.472 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Small diurnal fluctuation at low flow caused by Banco Mill 9 mi (14 km) upstream at State Highway 231. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--38 years, 219 ft^3/s (6.202 m^3/s), 16.61 in/yr (422 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft^3/s (694 m^3/s) June 22, 1972, gage height, 20.92 ft (6.376 m), from rating curve extended above 9,100 ft^3/s (260 m^3/s) on basis of records for other stations in Rappahannock River basin; minimum, 1.2 ft^3/s (0.034 m^3/s) Sept. 7, 13, 1954; minimum daily, 1.8 ft^3/s (0.051 m^3/s) Sept. 13, 27, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.9 ft (7.28 m), from floodmarks, discharge, about 44,000 ft^3/s (1,200 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,550 ft^3/s (43.9 m^3/s) Feb. 11, gage height, 7.26 ft (2.213 m), no peak above base of 1,700 ft^3/s (48 m^3/s); minimum, 13 ft^3/s (0.37 m^3/s) Aug. 29, 30, gage height, 1.23 ft (0.375 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	51	96	57	48	188	85	169	100	52	63	156
2	39	49	90	58	207	168	83	133	174	101	54	48
3	36	47	84	52	184	154	76	114	183	123	51	47
4	41	53	77	42	113	140	72	104	354	203	64	48
5	38	73	82	37	108	154	76	96	417	214	60	73
6	36	57	73	45	103	143	95	92	266	181	57	57
7	35	53	70	58	98	127	79	90	232	137	64	50
8	33	52	68	52	76	119	76	80	178	108	57	46
9	34	52	69	45	73	114	76	75	150	92	52	45
10	37	59	72	56	70	110	84	78	207	80	44	38
11	39	54	66	47	926	107	78	179	175	105	39	33
12	39	50	64	40	513	103	80	274	127	72	58	30
13	35	50	62	35	286	100	125	178	114	64	68	27
14	35	51	60	40	220	96	111	151	114	61	49	25
15	38	52	57	49	180	91	112	143	101	53	42	27
16	39	54	58	60	156	93	102	151	89	49	38	117
17	42	59	57	56	144	94	103	117	78	52	32	70
18	43	224	54	55	138	91	110	105	71	46	29	49
19	111	133	55	53	137	93	97	176	69	42	27	38
20	51	102	50	60	911	90	96	243	118	43	26	32
21	39	89	41	64	556	87	91	188	204	89	23	28
22	36	80	57	68	414	82	85	155	194	41	21	27
23	36	74	66	61	391	81	85	133	102	36	21	26
24	34	120	66	58	388	79	87	119	81	43	20	22
25	150	241	52	56	321	76	78	106	71	158	18	21
26	153	131	45	61	269	75	74	94	65	86	16	20
27	84	105	42	58	231	75	90	89	57	69	15	20
28	69	135	56	53	205	72	99	100	53	73	15	18
29	62	135	63	46	---	71	87	124	49	217	14	16
30	55	111	67	41	---	86	88	107	46	100	60	16
31	53	---	68	37	---	106	---	102	---	74	50	---
TOTAL	1614	2596	1987	1600	7466	3265	2680	4065	4239	2864	1247	1270
MEAN	52.1	86.5	64.1	51.6	267	105	89.3	131	141	92.4	40.2	42.3
MAX	153	241	96	68	926	188	125	274	417	217	68	156
MIN	33	47	41	35	48	71	72	75	46	36	14	16
CFSM	.29	.48	.36	.29	1.49	.59	.50	.73	.79	.52	.23	.24
IN.	.34	.54	.41	.33	1.55	.68	.56	.84	.88	.60	.26	.26

CAL YR 1980 TOTAL 79984 MEAN 219 MAX 3020 MIN 26 CFSM 1.22 IN 16.62
WTR YR 1981 TOTAL 34893 MEAN 95.6 MAX 926 MIN 14 CFSM .53 IN 7.25

01667500 RAPIDAN RIVER NEAR CULPEPER, VA

LOCATION.--Lat 38°21'01", long 77°58'31", Culpeper County, Hydrologic Unit 02080103, on left bank 0.7 mi (1.1 km) upstream from Cedar Run and bridge on U.S. Highway 522, 8.5 mi (13.7 km) south of Culpeper, and at mile 29.6 (47.6 km).

DRAINAGE AREA.--472 mi² (1,222 km²).

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 741: 1931. WSP 801: 1934(M), 1936(M). WSP 1081: 1943-46. WSP 1171: 1932(M), 1933-35. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 241.36 ft (73.567 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by mills at Rapidan and on Robinson River at State Highway 231. Gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--51 years, 523 ft³/s (14.81 m³/s), 15.05 in/yr (382 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,100 ft³/s (1,650 m³/s) Oct. 16, 1942, gage height, 30.3 ft (9.24 m), from floodmark, from rating curve extended above 43,000 ft³/s (1,200 m³/s) on basis of slope-area measurement of peak flow; minimum, 2.1 ft³/s (0.059 m³/s) Oct. 4, 5, 11, 1954; minimum daily, 2.2 ft³/s (0.062 m³/s) Oct. 4, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,240 ft³/s (91.8 m³/s) Feb. 20, gage height, 5.06 ft (1.542 m), no peak above base of 4,500 ft³/s (130 m³/s); minimum, 40 ft³/s (1.13 m³/s) Aug. 29, gage height, 0.49 ft (0.149 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	90	205	142	103	454	210	306	257	111	161	238
2	81	88	193	125	252	412	194	328	320	718	141	185
3	80	87	182	118	588	377	180	276	464	709	130	126
4	77	92	169	96	261	343	169	250	945	883	167	132
5	79	121	169	88	245	355	167	231	1000	1140	157	236
6	75	120	161	101	240	360	207	220	756	1420	146	201
7	72	105	158	124	206	312	191	215	640	817	182	150
8	70	100	155	96	204	287	175	196	500	553	171	133
9	68	100	156	86	166	275	173	182	419	427	165	128
10	65	108	167	116	164	259	191	182	420	352	129	116
11	63	115	160	84	1630	251	186	243	466	401	112	94
12	67	100	151	75	1430	243	184	624	341	303	112	83
13	63	101	145	68	693	234	259	395	298	254	172	75
14	61	99	147	86	536	228	269	328	309	230	140	68
15	67	102	142	99	430	212	249	296	283	206	110	68
16	74	104	139	112	368	213	236	319	241	182	99	756
17	85	114	140	122	336	217	232	269	210	180	89	338
18	109	317	135	117	322	210	258	237	188	170	78	207
19	165	280	133	115	315	210	240	306	177	149	73	147
20	104	193	127	125	1920	207	228	517	171	139	69	118
21	87	157	95	131	1540	200	227	430	428	254	66	100
22	81	143	106	140	1060	190	210	351	330	165	62	90
23	80	133	127	138	914	187	208	305	256	127	59	86
24	79	147	133	128	932	180	216	276	186	120	57	77
25	230	418	111	126	779	176	204	251	162	330	53	71
26	300	301	106	132	651	171	189	224	147	250	50	69
27	180	229	98	136	562	169	199	209	131	188	46	70
28	140	255	123	136	499	164	236	209	119	173	44	67
29	110	273	142	103	---	160	209	340	109	623	42	61
30	104	235	154	98	---	173	199	300	101	300	127	57
31	94	---	146	81	---	252	---	263	---	196	147	---
TOTAL	3090	4827	4475	3446	17366	7681	6295	9078	10374	12070	3356	4347
MEAN	99.7	161	144	111	620	248	210	293	346	389	108	145
MAX	300	418	205	142	1920	454	269	624	1000	1420	182	756
MIN	61	87	95	68	103	160	167	182	101	111	42	57
CFSM	.21	.34	.31	.24	1.31	.53	.45	.62	.73	.82	.23	.31
IN.	.24	.38	.35	.27	1.37	.61	.50	.72	.82	.95	.26	.34

CAL YR 1980 TOTAL 189137 MEAN 517 MAX 4610 MIN 60 CFSM 1.10 IN 14.91
WTR YR 1981 TOTAL 86405 MEAN 237 MAX 1920 MIN 42 CFSM .50 IN 6.81

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA
(National stream-quality accounting network station)

LOCATION.--Lat 38°19'20", long 77°31'05", Spotsylvania County, Hydrologic Unit 02080104, on right bank 1.6 mi (2.6 km) upstream from dam of Virginia Electric and Power Co., 2.2 mi (3.5 km) downstream from Motts Run, 3.8 mi (6.1 km) upstream from Fredericksburg, and at mile 4.4 (7.1 km).

DRAINAGE AREA.--1,596 mi^2 (4,134 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1907 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 801: 1924(M). WSP 951: 1937(M). WSP 1302: 1907-12, 1913(M), 1916(M), 1918(M), 1920-21(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 55.18 ft (16.819 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 15, 1922, nonrecording gage, and Jan. 15, 1922, to Aug. 2, 1966, water-stage recorder at same site at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good.

AVERAGE DISCHARGE.--74 years, 1,658 ft^3/s (46.95 m^3/s), 14.11 in/yr (358 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 140,000 ft^3/s (3,960 m^3/s) Oct. 16, 1942, gage height, 26.9 ft (8.20 m), present datum, from floodmarks, from rating curve extended above 76,000 ft^3/s (2,200 m^3/s) on basis of flow over dam and slope-area measurements at gage heights 26.1 ft (7.96 m) and 26.9 ft (8.20 m), present datum; minimum, 5 ft^3/s (0.14 m^3/s) Oct. 11, 12, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1889 was probably several feet lower than that of Oct. 16, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,000 ft^3/s (312 m^3/s) Feb. 20, gage height, 7.04 ft (2.146 m), no peak above base of 16,000 ft^3/s (450 m^3/s); minimum, 93 ft^3/s (2.63 m^3/s) Aug. 30, gage height, 1.25 ft (0.381 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	164	214	621	354	278	1140	600	484	586	221	374	1060
2	159	201	527	344	335	1040	546	843	650	221	295	524
3	173	195	478	340	695	934	514	953	963	852	251	508
4	167	195	449	340	1310	852	478	742	1160	1530	389	384
5	159	204	421	344	792	817	454	635	1710	2000	443	344
6	151	221	405	291	703	915	472	573	1510	1890	326	460
7	151	243	389	291	628	888	546	540	1170	1520	287	490
8	148	228	379	304	527	750	527	514	1040	992	299	374
9	143	218	384	295	454	687	484	478	834	726	287	321
10	145	214	389	266	410	650	484	443	750	579	278	291
11	143	211	394	266	1720	628	496	508	972	484	243	291
12	133	232	389	270	6500	607	490	2340	972	502	228	262
13	125	232	374	232	2300	579	703	1780	695	432	484	236
14	123	214	354	211	1380	559	1100	1110	607	364	573	221
15	118	208	344	211	1150	533	953	897	680	317	389	204
16	114	211	335	225	944	520	826	826	665	291	287	258
17	109	221	326	254	817	514	710	843	540	262	232	1210
18	114	317	326	299	758	527	687	687	449	243	201	726
19	125	808	326	291	750	520	687	672	389	236	179	514
20	135	680	308	270	3150	514	635	1170	389	221	162	379
21	182	472	247	295	7120	514	579	1420	925	201	148	308
22	182	369	262	326	3430	496	559	1040	1370	251	140	262
23	159	326	278	335	2660	478	520	826	879	243	138	243
24	138	326	312	344	3230	460	520	703	573	198	133	225
25	185	650	340	349	2430	460	527	621	415	232	125	214
26	533	1260	359	317	1830	443	520	559	354	432	121	198
27	800	775	295	326	1480	432	478	502	312	710	112	185
28	437	635	287	330	1260	426	484	478	278	502	105	176
29	304	758	299	304	---	421	540	514	251	635	97	170
30	251	758	326	299	---	426	496	718	228	1020	394	164
31	228	---	369	291	---	478	---	657	---	553	3510	---
TOTAL	6198	11796	11292	9214	49041	19208	17615	25076	22316	18860	11230	11202
MEAN	200	393	364	297	1751	620	587	809	744	608	362	373
MAX	800	1260	621	354	7120	1140	1100	2340	1710	2000	3510	1210
MIN	109	195	247	211	278	421	454	443	228	198	97	164
CFSM	.13	.25	.23	.19	1.10	.39	.37	.51	.47	.38	.23	.23
IN.	.14	.27	.26	.21	1.14	.45	.41	.58	.52	.44	.26	.26

CAL YR 1980 TOTAL 586667 MEAN 1603 MAX 17600 MIN 109 CFSM 1.00 IN 13.67
WTR YR 1981 TOTAL 213048 MEAN 584 MAX 7120 MIN 97 CFSM .37 IN 4.97

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples taken at south bank of river 1.5 mi (2.4 km) upstream from discharge station.

PERIOD OF RECORD.--Water years 1929-30, 1956, 1967-74, 1978 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1955 to September 1956, April 1968 to August 1974.
WATER TEMPERATURES: October 1955 to September 1956, April 1968 to August 1974.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 06...	1030	218	78	7.4	8.5	.60	10.6	K12	K9	22	0
JAN 13...	1030	239	87	7.1	.5	1.3	14.0	K1	K2	28	7
MAR 09...	1030	687	70	7.4	6.0	1.1	12.0	11	K6	20	2
MAY 08...	1030	514	70	7.4	16.5	1.4	9.0	8	14	20	4
JUL 13...	1000	443	66	7.4	26.0	3.5	7.1	--	44	21	3
SEP 02...	1000	520	85	7.0	24.0	16	8.6	74	400	24	7

K Result based on colony count outside optimal range.

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV 06...	5.4	2.1	4.0	2.8	22	7.5	4.9	<.1	8.1	52	48
JAN 13...	7.3	2.4	5.2	1.8	21	5.7	5.9	<.1	12	50	56
MAR 09...	4.6	2.1	3.7	1.4	18	7.0	4.4	<.1	11	52	49
MAY 08...	5.1	1.7	3.3	1.4	16	4.5	3.6	<.1	8.9	48	39
JUL 13...	5.3	1.8	3.4	2.0	18	3.6	3.5	<.1	9.6	--	42
SEP 02...	5.9	2.3	3.5	3.9	17	7.5	8.2	.1	7.3	59	50

< Actual value is known to be less than the value shown.

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
NOV 06...	.03	.02	.080	.030	.95	.13	.98	.15	.010	.010	<1
JAN 13...	.65	.62	.020	.020	.14	.13	.79	.75	<.010	<.010	--
MAR 09...	.78	.76	.060	.030	.26	.21	1.0	.97	.020	.010	<1
MAY 08...	.28	.28	.060	.050	.39	.28	.67	.56	.030	.010	--
JUL 13...	.45	.47	.040	.010	.32	.29	.77	.76	.030	<.010	1
SEP 02...	.55	.55	.120	.130	.74	.76	1.3	1.3	.070	.040	2

< Actual value is known to be less than the value shown.

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)
NOV											
06...	<1	100	30	1	1	10	<10	<1	<1	1	2
JAN											
13...	--	--	--	--	--	--	--	--	--	--	--
MAR											
09...	<1	100	100	<1	<1	20	10	<1	<1	2	1
MAY											
08...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	1	100	20	1	<1	10	<10	4	<1	5	4
SEP											
02...	1	100	<50	<1	<1	10	<10	<1	<1	11	5

< Actual value is known to be less than the value shown.

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)
NOV											
06...	280	150	3	1	20	10	.1	<.1	1	<1	<1
JAN											
13...	--	--	--	--	--	--	--	--	--	--	--
MAR											
09...	550	120	4	2	50	30	.7	<.1	1	<1	<1
MAY											
08...	--	--	--	--	--	--	--	--	--	--	--
JUL											
13...	370	120	3	1	60	50	<.1	<.1	7	3	<1
SEP											
02...	760	200	3	3	70	40	.1	.1	35	6	<1

< Actual value is known to be less than the value shown.

DATE	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	PHYTOPLANKTON, TOTAL (CELLS PER ML)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
06...	<1	<1	<1	10	<10	--	4.5	.2	26	1	100
JAN											
13...	--	--	--	--	--	1.7	--	--	--	3	100
MAR											
09...	<1	<1	<1	100	10	--	2.4	.4	77	12	100
MAY											
08...	--	--	--	--	--	2.1	--	--	930	6	100
JUL											
13...	<1	<1	<1	20	4	--	21	.4	26	7	100
SEP											
02...	<1	<1	<1	20	<10	--	11	.3	670	14	100

< Actual value is known to be less than the value shown.

01668000 RAPPAHANNOCK RIVER NEAR FREDERICKSBURG, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	NOV 6,80		MAR 9,81		MAY 8,81		JUL 13,81		SEP 2,81	
TIME	1030		1030		1030		1000		1000	
TOTAL CELLS/ML	26		77		930		26		670	
DIVERSITY: DIVISION	1.0		1.0		1.0		1.0		0.2	
.CLASS	1.0		1.0		1.0		1.0		0.2	
..ORDER	1.0		1.5		1.2		1.0		1.1	
...FAMILY	1.0		1.9		1.4		1.0		1.6	
....GENUS	1.0		1.9		1.5		1.0		1.6	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	64	7	13#	50	--	-
....SELENASTRUM	--	-	--	-	13	1	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	--	-	26#	33	130	14	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	13#	50	13#	17	26	3	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	--	-	26	3	13#	50	--	-
..PENNALES										
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	--	-	--	-	14	2
...FRAGILARIACEAE										
....SYNEDRA	--	-	13#	17	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	13#	50	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	--	-	--	-	13	1	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	--	-	26#	33	--	-	--	-	14	2
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	--	-	660#	71	--	-	180#	27
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	370#	55
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	--	-	--	-	96	14

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

01668500 CAT POINT CREEK NEAR MONTROSS, VA

LOCATION.--Lat 38°02'23", long 76°49'38", Richmond County, Hydrologic Unit 02080104, on right bank 200 ft (61 m) upstream from bridge on State Highway 637, 1.7 mi (2.7 km) west of Farmers Fork, 3.8 mi (6.1 km) south of Montross, and 11.4 mi (18.3 km) upstream from mouth.

DRAINAGE AREA.--45.6 mi² (118.1 km²).

PERIOD OF RECORD.--September 1943 to current year.

REVISED RECORDS.--WSP 1382: 1944(M), 1945, 1946-51(M), 1952(P), 1953-54(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2.93 ft (0.893 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 19, 1953, nonrecording gage near right bank at downstream side of highway bridge at same datum.

REMARKS.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 44.6 ft³/s (1.263 m³/s), 13.28 in/yr (337 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,820 ft³/s (193 m³/s) Aug. 20, 1969, gage height, 10.45 ft (3.185 m), from rating curve extended above 1,400 ft³/s (40 m³/s); no flow at times in 1943, 1957, 1959, 1960, 1966, and 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1935 exceeded 9.3 ft (2.83 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 335 ft³/s (9.49 m³/s) at 0300 hours May 16, gage height, 5.67 ft (1.728 m), no other peak above base of 250 ft³/s (7.1 m³/s); minimum daily, 0.68 ft³/s (0.019 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	24	32	27	22	24	57	37	49	3.1	5.4	2.7
2	2.1	23	31	25	25	23	65	35	46	3.1	4.7	1.9
3	3.0	22	29	22	27	22	55	32	46	2.3	4.3	1.5
4	4.6	24	28	19	26	22	36	31	39	4.7	4.3	1.2
5	3.5	27	28	15	24	25	32	30	36	6.5	3.7	1.2
6	2.7	28	28	13	23	26	59	27	32	7.3	3.3	1.1
7	2.0	28	28	17	22	25	49	24	32	7.5	3.2	1.0
8	1.4	28	28	16	25	24	38	22	27	9.0	7.0	1.5
9	1.2	28	29	12	25	24	33	21	24	7.7	8.0	3.5
10	1.4	29	31	10	25	23	33	20	25	6.4	6.1	2.4
11	1.4	29	31	9.0	28	22	31	58	25	5.3	5.4	1.9
12	1.4	29	31	7.0	34	22	33	160	18	4.3	4.9	1.7
13	1.4	28	30	5.0	33	22	56	123	16	3.5	4.7	1.9
14	1.4	28	29	6.0	32	21	58	93	21	2.8	4.2	1.8
15	1.5	28	28	7.0	31	21	55	123	20	2.1	3.6	1.7
16	1.6	27	28	9.0	28	22	46	272	16	1.8	3.2	3.3
17	1.6	28	28	10	25	25	45	155	14	1.8	2.8	3.7
18	1.7	41	28	9.0	22	25	45	106	12	1.5	2.4	6.4
19	5.5	40	28	11	23	24	43	132	11	1.4	2.2	5.2
20	4.6	36	27	15	31	23	54	138	20	1.2	2.3	4.2
21	3.8	32	26	20	42	22	55	118	37	1.2	2.2	3.6
22	3.7	29	25	22	38	22	52	101	21	1.4	2.0	3.3
23	3.5	28	27	23	35	22	49	89	17	1.2	2.4	2.6
24	3.4	29	29	23	32	22	54	82	13	1.2	2.3	2.2
25	25	35	29	25	28	27	51	73	11	1.2	2.0	1.9
26	49	33	24	26	26	28	47	65	8.2	1.4	1.8	1.7
27	41	33	19	28	25	29	46	59	6.5	6.5	1.6	1.2
28	32	36	21	27	24	29	44	65	5.3	7.3	1.3	1.0
29	29	36	24	27	---	29	42	64	4.3	13	1.2	.80
30	27	33	28	25	---	33	40	60	3.2	8.4	1.2	.68
31	25	---	28	23	---	53	---	53	---	6.4	2.1	---
TOTAL	288.6	899	860	533.0	781	781	1403	2468	655.5	132.5	105.8	68.78
MEAN	9.31	30.0	27.7	17.2	27.9	25.2	46.8	79.6	21.9	4.27	3.41	2.29
MAX	49	41	32	28	42	53	65	272	49	13	8.0	6.4
MIN	1.2	22	19	5.0	22	21	31	20	3.2	1.2	1.2	.68
CFSM	.20	.66	.61	.38	.61	.55	1.03	1.75	.48	.09	.08	.05
IN.	.24	.73	.70	.43	.64	.64	1.14	2.01	.53	.11	.09	.06

CAL YR 1980 TOTAL 15276.76 MEAN 41.7 MAX 193 MIN .02 CFSM .91 IN 12.46
WTR YR 1981 TOTAL 8976.18 MEAN 24.6 MAX 272 MIN .68 CFSM .54 IN 7.32

01668800 HOSKINS CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°55'38", long 76°57'16", Essex County, Hydrologic Unit 02080104, at bridge on State Highway 717, 0.4 mi (0.6 km) upstream from Criddlin Swamp, 2.9 mi (4.7 km) downstream from site of Hutchinson Mill Pond (destroyed by flood of August 1969), and 5.0 mi (8.0 km) west of Tappahannock.

DRAINAGE AREA.--15.5 mi² (40.1 km²).

PERIOD OF RECORD.--October 1964 to September 1969, June 1970 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 36.28 ft (11.058 m), revised, National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--16 years, 17.1 ft³/s (0.484 m³/s), 14.98 in/yr (380 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,380 ft³/s (39.1 m³/s) Aug. 20, 1969, gage height, 10.23 ft (3.118 m), from rating curve extended above 100 ft³/s (2.8 m³/s) on basis of velocity-area study; minimum, 0.20 ft³/s (0.006 m³/s) Sept. 12, 13, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 81 ft³/s (2.29 m³/s) May 19, gage height, 3.46 ft (1.055 m), no peak above base of 100 ft³/s (2.8 m³/s); minimum, 0.84 ft³/s (0.024 m³/s) July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.2	7.8	11	8.8	6.2	8.5	14	8.5	7.7	3.0	2.7	2.7
2	4.4	7.4	10	8.7	13	8.2	15	8.3	8.6	5.6	2.0	2.5
3	6.9	7.4	9.5	8.2	15	7.8	12	8.0	9.6	5.3	1.9	2.3
4	12	8.7	9.1	7.6	11	7.6	10	7.2	8.5	12	2.4	2.2
5	7.6	11	9.1	6.8	8.0	12	12	6.8	7.7	15	2.3	2.0
6	5.9	9.8	9.1	7.3	7.0	12	24	7.0	7.2	15	2.3	2.1
7	5.0	9.0	9.2	9.5	7.1	10	16	7.3	7.9	13	2.4	2.2
8	4.5	8.5	9.1	9.2	10	8.8	13	6.7	7.3	7.4	8.7	2.4
9	4.3	8.5	9.5	8.2	10	8.0	12	6.3	6.0	4.9	10	2.6
10	4.2	9.1	11	7.5	8.7	7.3	12	7.3	20	3.9	4.9	2.3
11	6.0	8.7	9.5	7.0	19	7.3	10	29	20	3.8	3.5	2.2
12	11	8.0	9.1	6.6	23	7.2	10	53	11	3.6	3.4	2.2
13	6.5	8.0	9.1	6.2	14	7.2	16	23	8.3	3.3	3.6	2.0
14	5.2	8.0	9.1	6.5	11	6.6	13	14	8.2	2.3	3.0	1.9
15	4.9	8.3	8.4	8.0	9.2	6.6	13	28	7.9	2.2	2.5	1.9
16	4.8	8.3	8.4	10	8.4	7.7	11	56	6.3	1.9	2.1	4.3
17	4.8	9.0	8.4	11	8.4	9.1	11	27	5.3	1.8	1.8	6.0
18	4.8	21	8.2	10	8.3	8.5	11	17	5.0	1.7	1.7	28
19	21	17	8.4	10	8.4	7.9	10	60	4.1	1.6	1.7	18
20	17	13	7.8	9.9	15	8.4	17	57	6.3	1.3	1.9	8.5
21	11	11	7.1	11	21	7.7	17	30	20	1.2	1.7	5.2
22	8.2	9.7	6.8	11	16	7.3	13	19	17	1.1	2.3	3.6
23	6.9	9.1	8.7	10	15	8.5	11	14	10	1.1	2.5	3.0
24	6.5	11	11	9.4	16	9.0	12	11	6.2	.98	2.4	2.3
25	28	16	11	8.7	13	8.3	11	9.4	4.8	1.2	2.3	2.1
26	36	13	8.4	8.3	11	7.8	9.7	8.3	3.6	3.4	2.2	2.0
27	20	12	8.2	9.0	9.5	7.6	9.9	7.6	3.4	9.3	2.1	2.0
28	13	15	9.1	8.8	8.8	7.6	9.8	13	2.9	8.6	2.0	1.9
29	9.8	13	10	8.2	---	7.2	8.8	16	2.3	13	2.0	1.9
30	8.7	11	10	7.0	---	10	8.5	13	2.3	8.0	2.4	1.9
31	8.0	---	9.2	6.4	---	15	---	9.1	---	3.9	2.7	---
TOTAL	301.1	317.3	282.5	264.8	331.0	262.7	372.7	587.8	245.4	160.38	89.4	124.2
MEAN	9.71	10.6	9.11	8.54	11.8	8.47	12.4	19.0	8.18	5.17	2.88	4.14
MAX	36	21	11	11	23	15	24	60	20	15	10	28
MIN	4.2	7.4	6.8	6.2	6.2	6.6	8.5	6.3	2.3	.98	1.7	1.9
CFSM	.63	.68	.59	.55	.76	.55	.80	1.23	.53	.33	.19	.27
IN.	.72	.76	.68	.64	.79	.63	.89	1.41	.59	.38	.21	.30

CAL YR 1980 TOTAL 5874.60 MEAN 16.1 MAX 69 MIN 2.9 CFSM 1.04 IN 14.10
WTR YR 1981 TOTAL 3339.28 MEAN 9.15 MAX 60 MIN .98 CFSM .59 IN 8.01

01669000 PISCATAWAY CREEK NEAR TAPPAHANNOCK, VA

LOCATION.--Lat 37°52'37", long 76°54'03", Essex County, Hydrologic Unit 02080104, on right bank at upstream side of bridge on State Highway 691, 0.6 mi (1.0 km) south of Henley Fork, 2.3 mi (3.7 km) downstream from Sturgeon Swamp, and 4.2 mi (6.8 km) southwest of Tappahannock.

DRAINAGE AREA.--28.0 mi^2 (72.5 km^2).

PERIOD OF RECORD.--July 1951 to current year.

REVISED RECORDS.--WSP 2103: Drainage area. WDR VA-79-1: 1970-76(P), 1978(P).

GAGE.--Water-stage recorder. Datum of gage is 2.50 ft (0.762 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--30 years, 32.7 ft^3/s (0.926 m^3/s), 15.86 in/yr (403 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,380 ft^3/s (67.4 m^3/s) Aug. 20, 1969, gage height, 7.52 ft (2.292 m), from rating curve extended above 1,400 ft^3/s (40 m^3/s); minimum, 0.01 ft^3/s (<0.001 m^3/s) Oct. 2, 1954, gage height, 0.33 ft (0.101 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 179 ft^3/s (5.07 m^3/s) May 12, gage height, 3.35 ft (1.021 m), no peak above base of 250 ft^3/s (7.1 m^3/s); minimum, 2.0 ft^3/s (0.057 m^3/s) July 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.8	15	20	18	8.8	15	25	10	13	4.7	6.1	7.7
2	6.6	16	14	18	17	14	29	11	13	9.0	4.6	5.2
3	9.4	12	12	15	26	13	22	11	15	11	4.1	4.1
4	18	13	12	9.5	21	12	16	9.3	14	14	4.9	3.5
5	14	17	13	8.5	17	19	17	8.4	12	38	7.1	3.0
6	8.2	17	12	7.3	13	26	44	8.3	9.7	27	6.0	3.1
7	6.6	14	12	10	12	19	32	8.2	10	21	4.9	3.3
8	5.8	12	14	12	16	15	21	7.9	11	14	9.6	3.5
9	5.3	12	16	9.2	18	13	18	7.4	9.3	8.3	18	4.1
10	5.3	13	19	8.3	14	13	17	7.3	13	6.5	11	4.3
11	5.2	14	19	7.6	19	12	16	43	21	5.5	6.4	4.0
12	6.0	14	18	7.2	38	12	14	139	12	4.7	5.5	3.4
13	7.9	14	15	6.8	26	12	18	47	7.9	4.3	5.7	3.0
14	6.2	15	12	6.5	20	11	20	25	7.9	3.8	6.3	2.7
15	5.4	16	12	7.5	17	11	17	21	7.7	3.2	5.7	2.6
16	5.2	16	14	10	16	12	14	56	7.1	3.0	4.8	7.1
17	5.2	17	16	11	16	15	13	34	6.3	3.1	4.0	12
18	5.2	28	16	9.8	17	15	13	20	5.4	3.2	3.3	18
19	20	28	16	9.2	15	13	12	78	5.0	3.1	3.2	22
20	23	18	16	10	21	12	26	107	7.2	2.6	3.3	12
21	12	15	15	12	37	11	37	51	24	2.6	3.4	7.0
22	8.0	16	14	14	31	11	20	33	26	2.5	4.1	5.5
23	6.8	17	16	14	28	12	15	25	13	2.4	5.0	4.5
24	6.7	20	18	14	31	13	18	21	8.0	2.3	5.1	3.8
25	31	27	19	14	28	12	16	17	6.2	2.5	4.5	3.5
26	50	25	16	13	22	12	13	15	5.3	5.5	3.9	3.2
27	27	22	15	14	18	10	12	13	4.3	9.6	3.4	3.1
28	14	26	17	13	16	10	13	19	3.7	12	3.1	3.1
29	12	26	19	12	---	9.8	12	32	3.7	31	2.9	2.9
30	12	23	19	9.6	---	12	10	22	3.5	22	3.2	2.6
31	11	---	18	9.4	---	23	---	16	---	10	7.3	---
TOTAL	364.8	538	484	340.4	578.8	419.8	570	922.8	305.2	292.4	170.4	167.8
MEAN	11.8	17.9	15.6	11.0	20.7	13.5	19.0	29.8	10.2	9.43	5.50	5.59
MAX	50	28	20	18	38	26	44	139	26	38	18	22
MIN	5.2	12	12	6.5	8.8	9.8	10	7.3	3.5	2.3	2.9	2.6
CFSM	.42	.64	.56	.39	.74	.48	.68	1.06	.36	.34	.20	.20
IN.	.48	.71	.64	.45	.77	.56	.76	1.23	.41	.39	.23	.22

CAL YR 1980 TOTAL 11476.9 MEAN 31.4 MAX 148 MIN 2.0 CFSM 1.12 IN 15.25
WTR YR 1981 TOTAL 5154.4 MEAN 14.1 MAX 139 MIN 2.3 CFSM .50 IN 6.85

01669500 DRAGON SWAMP NEAR CHURCH VIEW, VA

LOCATION.--Lat 37°41'05", long 76°43'37", Middlesex County, Hydrologic Unit 02080102, on left bank at downstream side of bridge on State Highway 602, 0.9 mi (1.4 km) upstream from Briery Swamp, 1.8 mi (2.9 km) downstream from Tim Branch Swamp, 2.6 mi (4.2 km) west of Church View, and 2.9 mi (4.7 km) east of Dragonville.

DRAINAGE AREA.--84.9 mi² (219.9 km²).

PERIOD OF RECORD.--August 1943 to September 1981 (discontinued). Prior to October 1965, published as Dragon Run near Church View.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 34.00 ft (10.363 m) National Geodetic Vertical Datum of 1929. Prior to July 18, 1966, at site 400 ft (122 m) downstream at same datum.

REMARKS.--Records fair except those for August and September, which are poor. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 85.8 ft³/s (2.430 m³/s), 13.72 in/yr (348 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,910 ft³/s (139 m³/s) Sept. 6, 1979, gage height, 10.66 ft (3.249 m); no flow many days in 1954, 1955, 1957, 1959, and 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1935 reached a stage of about 17 ft (5.2 m), discharge not determined, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 252 ft³/s (7.14 m³/s) May 22, gage height, 5.69 ft (1.734 m), no peak above base of 600 ft³/s (17 m³/s); minimum daily, 0.24 ft³/s (0.007 m³/s) Sept. 6, 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	54	90	56	36	50	58	58	65	12	5.5	.79
2	1.7	50	87	56	46	48	65	56	74	16	4.5	.71
3	1.6	48	84	48	54	46	67	52	82	15	4.0	.71
4	1.5	48	82	41	50	45	60	52	65	16	4.5	.75
5	2.1	58	79	29	46	48	63	48	52	26	4.0	.31
6	1.8	67	74	24	46	52	93	43	45	29	4.0	.24
7	1.5	67	74	32	43	54	101	39	43	45	4.0	.31
8	.90	65	71	31	50	58	98	36	41	63	6.0	.75
9	.90	67	79	22	50	58	90	34	36	65	10	1.8
10	1.8	69	79	19	48	56	84	32	46	54	10	1.4
11	2.4	71	82	17	58	52	76	37	60	39	7.8	.86
12	3.5	71	82	12	74	48	71	93	48	26	6.4	.47
13	3.0	69	82	7.5	69	46	71	118	39	21	5.2	.31
14	3.0	69	79	9.0	67	45	74	132	34	15	4.4	.24
15	3.0	69	79	13	58	41	74	126	31	11	2.4	.55
16	3.0	69	76	16	52	45	71	145	26	9.0	1.9	25
17	3.0	69	76	17	48	48	67	148	24	8.0	1.8	18
18	3.0	93	74	15	45	52	69	118	21	6.5	1.7	32
19	22	98	71	19	41	54	69	145	18	5.5	2.3	26
20	29	98	71	28	43	54	74	176	21	4.0	3.2	17
21	25	98	63	36	63	54	87	220	46	3.0	2.8	13
22	25	95	56	41	65	50	87	244	39	4.0	3.0	11
23	24	93	54	43	69	52	84	210	32	4.0	3.6	9.4
24	24	90	56	43	71	60	87	142	26	3.5	1.5	7.5
25	63	98	54	46	69	58	84	98	19	3.0	1.6	6.4
26	120	98	45	50	60	54	79	71	16	4.0	1.6	5.5
27	120	95	37	54	54	52	74	56	13	9.0	1.7	4.4
28	112	95	43	54	48	50	71	58	9.0	16	1.5	2.9
29	93	98	50	50	---	48	67	71	7.0	16	1.3	2.3
30	74	93	58	46	---	48	63	65	6.0	9.0	1.1	1.8
31	60	---	56	39	---	54	---	63	---	6.5	1.1	---
TOTAL	830.40	2322	2143	1013.5	1523	1580	2278	2986	1084.0	564.0	114.4	192.40
MEAN	26.8	77.4	69.1	32.7	54.4	51.0	75.9	96.3	36.1	18.2	3.69	6.41
MAX	120	98	90	56	74	60	101	244	82	65	10	32
MIN	.90	48	37	7.5	36	41	58	32	6.0	3.0	1.1	.24
CFSM	.32	.91	.81	.39	.64	.60	.89	1.13	.43	.21	.04	.08
IN.	.36	1.02	.94	.44	.67	.69	1.00	1.31	.47	.25	.05	.08

CAL YR 1980 TOTAL 34869.10 MEAN 95.3 MAX 370 MIN .90 CFSM 1.12 IN 15.28
WTR YR 1981 TOTAL 16630.70 MEAN 45.6 MAX 244 MIN .24 CFSM .54 IN 7.29

01670000 BEAVERDAM SWAMP NEAR ARK, VA

LOCATION.--Lat 37°28'14", long 76°33'48", Gloucester County, Hydrologic Unit 02080102, on right bank 300 ft (91 m) downstream from bridge on State Highway 606, 1.4 mi (2.3 km) upstream from Beech Swamp, 2.3 mi (3.7 km) north of Ark, and 4.3 mi (6.9 km) northwest of Gloucester.

DRAINAGE AREA.--6.63 mi² (17.17 km²).

PERIOD OF RECORD.--October 1949 to current year.

REVISED RECORDS.--WSP 1502: 1950, 1951-52(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 36.43 ft (11.104 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--32 years, 7.24 ft³/s (0.205 m³/s), 14.83 in/yr (377 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 570 ft³/s (16.1 m³/s) Sept. 12, 1960, gage height, 5.88 ft (1.792 m), from rating curve extended above 130 ft³/s (3.7 m³/s); no flow July 30 to Aug. 2, 1953, Aug. 18, Sept. 4, 29, 30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15 ft³/s (0.42 m³/s) Feb. 12, gage height, 2.43 ft (0.741 m), no peak above base of 65 ft³/s (1.8 m³/s); no flow Aug. 18, Sept. 4, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	1.6	2.8	3.2	2.5	2.5	3.1	2.3	2.0	.35	.02	.02
2	1.4	1.5	2.8	3.1	6.2	2.4	2.6	2.1	2.1	.38	.02	.02
3	1.4	1.5	2.9	2.9	8.2	2.3	2.2	1.8	2.4	.29	.03	.01
4	1.6	2.0	3.0	2.6	4.7	2.2	1.8	1.5	1.7	.98	.03	.00
5	1.5	3.0	3.2	2.0	3.4	6.1	2.2	1.4	1.2	1.4	.02	.01
6	1.3	2.5	3.5	1.8	3.0	6.6	8.0	1.4	.90	3.1	.03	.02
7	1.2	2.2	3.9	2.6	3.2	4.1	5.2	1.5	2.3	3.2	.04	.01
8	1.1	2.1	4.2	2.7	8.0	3.2	3.2	1.4	2.6	1.4	.07	.03
9	1.1	2.2	3.8	2.6	6.6	2.8	2.9	1.3	1.4	.70	.04	.18
10	1.2	2.5	3.7	2.4	4.8	2.7	2.7	1.4	.95	.44	.03	.07
11	1.1	2.3	3.8	2.2	8.2	2.6	2.2	1.7	.80	.38	.03	.03
12	1.2	2.2	3.7	1.8	10	2.3	1.9	1.6	.65	.26	.09	.03
13	1.1	2.2	3.5	1.5	5.8	2.2	3.0	1.4	.55	.20	.07	.02
14	1.0	2.2	3.3	1.8	4.7	2.1	3.0	1.1	.50	.18	.03	.02
15	.98	2.2	3.2	2.2	4.2	2.0	2.9	1.9	.44	.15	.03	.02
16	.98	2.2	3.1	3.4	3.9	2.3	2.4	5.7	.38	.15	.02	.52
17	.94	2.5	3.1	4.5	3.4	3.6	2.1	3.6	.29	.15	.01	.90
18	.90	8.0	3.1	3.2	3.4	3.2	1.8	1.7	.26	.12	.00	.95
19	3.2	5.0	3.0	3.1	3.6	2.7	1.5	7.6	.32	.09	.01	1.0
20	3.2	3.6	2.7	3.8	4.2	2.5	3.8	10	.80	.07	.02	.35
21	2.1	3.2	2.3	5.0	6.8	2.3	5.7	5.3	4.8	.04	.02	.12
22	1.5	3.0	1.9	5.7	6.2	2.2	3.3	4.2	4.0	.04	.03	.04
23	1.2	2.9	3.0	5.1	5.0	2.9	2.3	2.6	1.6	.03	.04	.02
24	1.2	3.3	3.6	4.0	5.0	3.4	2.9	1.5	.75	.03	.04	.02
25	5.6	4.6	3.2	3.8	4.2	2.8	2.7	1.2	.50	.03	.03	.01
26	5.0	3.7	2.1	3.8	3.4	2.3	2.2	.90	.35	.04	.03	.01
27	2.5	3.2	2.4	4.2	2.9	2.2	5.0	.80	.26	.03	.02	.02
28	1.9	3.3	3.3	4.1	2.7	2.2	4.0	4.7	.18	.06	.02	.01
29	1.8	3.1	3.8	3.5	---	2.1	2.8	11	.14	.07	.02	.00
30	1.8	2.9	3.7	2.9	---	2.6	2.4	5.4	.12	.03	.03	.00
31	1.8	---	3.4	2.5	---	3.3	---	2.7	---	.03	.03	---
TOTAL	54.20	86.7	99.0	98.0	138.2	88.7	91.8	92.70	35.24	14.42	.95	4.46
MEAN	1.75	2.89	3.19	3.16	4.94	2.86	3.06	2.99	1.17	.47	.031	.15
MAX	5.6	8.0	4.2	5.7	10	6.6	8.0	11	4.8	3.2	.09	1.0
MIN	.90	1.5	1.9	1.5	2.5	2.0	1.5	.80	.12	.03	.00	.00
CFSM	.26	.44	.48	.48	.75	.43	.46	.45	.18	.07	.005	.02
IN.	.30	.49	.56	.55	.78	.50	.51	.52	.20	.08	.01	.03

CAL YR 1980 TOTAL 2579.84 MEAN 7.05 MAX 40 MIN .45 CFSM 1.06 IN 14.47
WTR YR 1981 TOTAL 804.37 MEAN 2.20 MAX 11 MIN .00 CFSM .33 IN 4.51

01670300 CONTRARY CREEK NEAR MINERAL, VA

LOCATION.--Lat 38°03'53", long 77°52'45", Louisa County, Hydrologic Unit 02080106, on left bank 400 ft (122 m) downstream from bridge on State Highway 522, and 4.0 mi (6.4 km) northeast of Mineral.

DRAINAGE AREA.--5.53 mi^2 (14.3 km^2).

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 275 ft (83.8 m), from topographic map.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--6 years, 5.02 ft^3/s (0.142 m^3/s), 12.33 in/yr (313 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 701 ft^3/s (19.9 m^3/s) Jan. 26, 1978, gage height, 3.33 ft (1.015 m), from rating curve extended above 310 ft^3/s (8.8 m^3/s); minimum, 0.04 ft^3/s (0.001 m^3/s) July 31, 1977, June 30, July 1, Aug. 28, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 87 ft^3/s (2.46 m^3/s) July 6, gage height, 1.80 ft (0.549 m), no peak above base of 200 ft^3/s (5.7 m^3/s); minimum, 0.04 ft^3/s (0.001 m^3/s) June 30, July 1, Aug. 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.74	.98	1.7	1.6	1.6	1.9	2.1	3.5	1.4	4.1	.31	1.7
2	.85	.85	1.6	1.4	5.0	1.9	2.1	2.3	3.0	2.1	.25	1.2
3	.98	.85	1.6	1.8	3.3	1.7	1.6	1.7	2.1	1.7	1.5	.98
4	.74	1.4	1.6	1.6	2.5	1.7	1.6	1.6	1.7	5.3	1.4	1.2
5	.55	1.6	1.6	1.8	1.6	5.3	2.1	1.4	1.4	5.0	.74	1.7
6	.55	1.2	1.6	1.9	1.7	3.8	3.0	1.4	1.2	24	1.2	1.4
7	.55	1.1	1.6	1.8	2.1	2.6	2.1	1.2	1.2	4.4	1.2	2.1
8	.46	1.1	1.6	1.9	1.5	2.3	1.7	1.1	.98	2.6	3.0	8.5
9	.46	1.2	1.7	1.7	1.8	2.1	1.9	1.1	.85	1.9	1.6	5.0
10	.46	1.2	1.9	1.9	1.9	2.1	2.1	1.2	2.3	1.4	1.1	2.3
11	.46	1.1	1.7	1.8	17	1.9	1.9	7.8	1.7	1.2	.98	1.7
12	.46	1.1	1.6	1.7	6.1	1.9	1.9	9.6	1.1	1.1	1.2	1.4
13	.46	1.1	1.6	1.7	3.6	1.9	4.4	3.3	.98	.98	1.2	1.1
14	.38	1.1	1.4	1.7	2.8	1.7	2.6	2.1	1.1	.98	.98	1.1
15	.38	1.1	1.4	1.7	2.8	1.7	3.5	1.9	.98	.74	.74	1.1
16	.38	1.1	1.4	1.8	2.1	1.7	2.3	2.1	.64	.74	.55	2.6
17	.46	2.2	1.4	1.7	2.1	1.7	2.3	1.7	.46	.85	.25	1.9
18	.98	6.1	1.4	1.8	2.1	1.6	2.6	1.7	.46	.74	.15	1.7
19	1.9	2.3	1.4	1.8	2.3	1.6	1.9	8.8	.46	.55	.20	1.6
20	1.1	1.6	1.2	1.8	7.0	1.9	2.8	7.9	.46	.64	.20	1.2
21	.85	1.6	1.7	2.0	7.0	1.7	2.3	3.5	.64	.64	.09	1.1
22	.74	1.4	2.0	1.8	3.8	1.7	1.9	2.3	.64	.25	.09	.98
23	.74	1.4	1.9	1.7	3.5	1.7	1.7	1.9	.38	.20	.15	.74
24	.74	5.2	1.7	1.7	3.3	1.6	1.9	1.7	.31	.98	.09	.55
25	13	4.1	1.7	1.7	2.6	1.6	1.7	1.6	.25	1.6	.08	.46
26	2.8	2.3	1.8	1.6	2.3	1.6	1.6	1.2	.12	1.1	.07	.46
27	1.7	2.1	1.9	1.6	2.1	1.6	2.3	1.2	.08	.98	.07	.38
28	1.4	4.0	2.0	1.4	2.1	1.4	2.1	1.4	.07	1.1	.05	.20
29	1.2	2.5	1.9	1.4	---	1.4	1.7	1.4	.07	1.2	.06	.15
30	1.1	1.8	1.7	1.2	---	2.8	1.7	1.4	.05	.74	.49	.15
31	1.1	---	1.6	1.3	---	3.3	---	1.4	---	.46	7.2	---
TOTAL	38.67	56.68	50.9	52.3	97.6	63.4	65.4	82.4	27.08	70.27	27.19	46.65
MEAN	1.25	1.89	1.64	1.69	3.49	2.05	2.18	2.66	.90	2.27	.88	1.56
MAX	13	6.1	2.0	2.0	17	5.3	4.4	9.6	3.0	24	7.2	8.5
MIN	.38	.85	1.2	1.2	1.5	1.4	1.6	1.1	.05	.20	.05	.15
CFSM	.23	.34	.30	.31	.63	.37	.39	.48	.16	.41	.16	.28
IN.	.26	.38	.34	.35	.66	.43	.44	.55	.18	.47	.18	.31

CAL YR 1980 TOTAL 1599.00 MEAN 4.37 MAX 77 MIN .08 CFSM .79 IN 10.75
WTR YR 1981 TOTAL 678.54 MEAN 1.86 MAX 24 MIN .05 CFSM .34 IN 4.56

01670800 NORTH ANNA RIVER NEAR PARTLOW, VA

LOCATION.--Lat 38°00'46", long 77°42'05", Spotsylvania County, Hydrologic Unit 02080106, on left bank 175 ft (53 m) downstream from bridge on State Highway 601, 3.8 mi (6.1 km) southwest of Partlow, and 1.1 mi (1.8 km) upstream from Northwest Creek.

DRAINAGE AREA.--344 mi² (891 km²).

PERIOD OF RECORD.--October 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 168.25 ft (51.283 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Feb. 24 to Apr. 9, which are fair. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft (460 hm³) 0.5 mi (0.8 km) upstream. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft³/s (331 m³/s) Feb. 26, 1979, gage height, 25.30 ft (7.711 m), from rating curve extended above 6,000 ft³/s (170 m³/s); minimum, 33 ft³/s (0.93 m³/s) Sept. 27, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 87 ft³/s (2.46 m³/s) Feb. 11, gage height, 4.61 ft (1.405 m); minimum, 44 ft³/s (1.25 m³/s) Nov. 18, Sept. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	50	50	47	49	56	58	50	52	53	50	57
2	62	50	50	47	55	56	54	49	48	56	48	55
3	53	49	52	47	56	54	52	47	47	56	53	55
4	50	52	48	47	56	54	54	47	47	59	59	55
5	49	50	47	47	56	56	56	48	48	60	55	55
6	48	49	47	47	56	56	60	47	48	69	62	55
7	48	49	47	47	56	54	58	47	48	74	62	53
8	49	49	47	47	57	54	54	47	48	71	62	55
9	49	49	47	48	56	54	52	47	50	57	59	50
10	49	52	49	50	55	54	52	49	53	59	57	46
11	48	56	48	49	60	52	53	52	53	59	55	46
12	48	56	47	50	53	52	56	59	52	60	55	47
13	47	53	47	50	49	52	57	59	50	59	48	49
14	47	52	47	50	49	52	56	59	50	59	47	47
15	49	52	47	49	52	52	57	60	50	56	47	47
16	48	48	50	48	52	50	56	60	50	53	52	49
17	49	46	52	48	52	50	57	56	55	50	52	48
18	50	46	52	50	53	50	59	55	50	50	48	48
19	53	45	52	50	55	50	57	56	52	49	47	48
20	52	45	50	52	57	49	59	57	56	47	49	47
21	52	45	50	52	59	49	60	59	56	48	49	47
22	52	45	49	52	59	49	57	59	55	50	55	50
23	50	45	49	52	60	48	56	56	53	49	52	52
24	49	46	48	52	60	48	56	55	49	55	49	50
25	59	47	50	52	60	48	55	56	49	57	50	48
26	56	49	47	52	60	47	53	52	48	57	55	53
27	49	49	47	52	58	47	56	52	55	57	50	55
28	48	49	47	51	56	50	55	53	55	57	49	56
29	49	49	48	51	---	52	55	55	52	59	48	52
30	53	50	49	49	---	54	50	55	52	55	49	50
31	50	---	48	49	---	58	---	55	---	52	56	---
TOTAL	1578	1472	1508	1534	1556	1607	1670	1658	1531	1752	1629	1525
MEAN	50.9	49.1	48.6	49.5	55.6	51.8	55.7	53.5	51.0	56.5	52.5	50.8
MAX	63	56	52	52	60	58	60	60	56	74	62	57
MIN	47	45	47	47	49	47	50	47	47	47	47	46
CFSM	.15	.14	.14	.14	.16	.15	.16	.16	.15	.16	.15	.15
IN.	.17	.16	.16	.17	.17	.17	.18	.18	.17	.19	.18	.16

CAL YR 1980 TOTAL 78680 MEAN 215 MAX 2700 MIN 40 CFSM .63 IN 8.51
WTR YR 1981 TOTAL 19020 MEAN 52.1 MAX 74 MIN 45 CFSM .15 IN 2.06

01671000 NORTH ANNA RIVER NEAR DOSWELL, VA

LOCATION.--Lat 37°53'15", long 77°29'15", Caroline County, Hydrologic Unit 02080106, on left bank 1.5 mi (2.4 km) upstream from bridge on U.S. Highway 1, 2.5 mi (4.0 km) northwest of Doswell, and 4.4 mi (7.1 km) upstream from Bull Run.

DRAINAGE AREA.--441 mi^2 (1,142 km^2).

PERIOD OF RECORD.--March 1926 to current year. Monthly discharge only for some periods, published in WSP 1302. Published as "near Hewlett," 1926-28.

REVISED RECORDS.--WSP 1171: 1943. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 55.66 ft (16.965 m) National Geodetic Vertical Datum of 1929. Mar. 23, 1926, to Aug. 11, 1928, nonrecording gage at site 10.2 mi (16.4 km) upstream at different datum. Mar. 17, 1929, to Nov. 7, 1930, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft (460 hm^3), 20.5 mi (33.0 km) upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--55 years, 385 ft^3/s (10.90 m^3/s), 11.86 in/yr (301 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,800 ft^3/s (702 m^3/s) Aug. 21, 1969, gage height, 32.60 ft (9.936 m); maximum gage height, 33.7 ft (10.27 m) Aug. 12, 1928, from floodmarks, present site and datum; minimum discharge, 1.0 ft^3/s (0.028 m^3/s) Sept. 30, Oct. 1, 2, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 388 ft^3/s (11.0 m^3/s) May 12, gage height, 2.20 ft (0.671 m); minimum, 51 ft^3/s (1.44 m^3/s) Aug. 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	67	84	73	68	84	97	82	81	80	57	62
2	72	64	80	72	76	82	95	80	84	78	55	62
3	85	62	77	70	95	80	87	76	81	74	55	62
4	70	68	76	63	90	77	80	72	79	99	73	62
5	60	74	72	68	86	88	85	69	78	105	70	64
6	58	72	69	70	84	105	116	70	78	130	72	62
7	56	68	69	68	84	97	104	69	79	165	66	65
8	56	67	69	74	77	88	90	67	75	123	76	66
9	57	66	72	74	79	82	85	67	72	90	74	70
10	57	67	76	68	76	79	87	69	83	76	66	65
11	57	67	76	66	109	76	85	95	80	97	62	58
12	56	70	74	64	210	76	84	239	74	97	64	58
13	55	72	73	62	137	74	107	231	72	75	64	59
14	55	72	72	62	98	73	112	164	78	69	61	61
15	55	72	70	62	90	73	112	111	73	65	59	61
16	58	72	70	62	82	72	100	111	69	62	58	74
17	57	72	76	62	79	74	95	98	66	60	58	66
18	58	125	74	62	76	73	93	90	68	58	59	64
19	95	118	74	62	79	70	90	164	66	57	57	62
20	74	98	74	66	104	72	93	210	72	55	54	60
21	64	80	76	69	219	72	93	171	75	55	54	59
22	62	73	80	73	193	70	88	130	70	54	55	59
23	60	69	73	72	152	72	85	104	66	54	58	62
24	58	76	72	72	135	72	84	88	62	54	55	60
25	107	100	76	73	120	70	84	81	59	61	53	59
26	141	93	90	70	102	68	77	78	58	62	53	58
27	90	90	74	70	90	67	82	78	56	61	57	64
28	79	95	69	74	85	69	90	95	65	61	56	62
29	69	97	72	70	---	69	87	181	59	62	55	62
30	68	90	74	69	---	80	82	104	59	61	57	61
31	68	---	76	68	---	104	---	86	---	59	61	---
TOTAL	2129	2376	2309	2110	2975	2408	2749	3430	2137	2359	1874	1869
MEAN	68.7	79.2	74.5	68.1	106	77.7	91.6	111	71.2	76.1	60.5	62.3
MAX	141	125	90	74	219	105	116	239	84	165	76	74
MIN	55	62	69	62	68	67	77	67	56	54	53	58
CFSM	.16	.18	.17	.15	.24	.18	.21	.25	.16	.17	.14	
IN.	.18	.20	.19	.18	.25	.20	.23	.29	.18	.20	.16	

CAL YR 1980 TOTAL 115427 MEAN 315 MAX 3510 MIN 44 CFSM .71 IN 9.74
WTR YR 1981 TOTAL 28725 MEAN 78.7 MAX 239 MIN 53 CFSM .18 IN 2.42

01671020 NORTH ANNA RIVER AT HART CORNER NEAR DOSWELL, VA

LOCATION.--Lat 37°51'00", long 77°25'41", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 30, 0.3 mi (0.5 km) west of Hart Corner, 2.1 mi (3.4 km) east of Doswell, and 5.4 mi (8.7 km) upstream from confluence with South Anna River.

DRAINAGE AREA.--463 mi^2 (1,199 km^2).

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 43 ft (13.1 m), from topographic map.

REMARKS.--Records good. Flow regulated since January 1972 by Lake Anna, capacity, 373,000 acre-ft (460 hm^3), 27.7 mi (44.6 km) upstream. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 7,800 ft^3/s (221 m^3/s) Oct. 3, 1979; minimum discharge, 44 ft^3/s (1.25 m^3/s) Sept. 28, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 397 ft^3/s (11.2 m^3/s) May 12, gage height, 4.88 ft (1.487 m); minimum, 45 ft^3/s (1.27 m^3/s) Dec. 26, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	65	86	71	68	99	116	91	85	91	58	60
2	68	62	81	67	80	96	112	92	90	89	56	62
3	91	61	78	65	96	94	100	85	90	73	56	61
4	78	66	78	71	90	90	95	80	83	201	67	61
5	61	79	74	71	90	101	95	76	80	132	72	61
6	58	72	72	90	93	119	151	77	79	145	72	62
7	56	68	71	78	84	112	127	77	84	182	66	62
8	54	66	69	63	81	102	108	74	78	142	88	64
9	54	67	74	73	83	95	100	72	73	100	80	67
10	56	67	77	72	77	91	102	74	89	79	66	65
11	55	66	78	63	114	89	99	144	91	84	60	56
12	54	71	75	64	228	89	96	288	77	109	60	56
13	53	73	74	64	176	88	122	323	72	78	62	57
14	53	73	72	66	127	85	130	214	80	70	58	59
15	54	73	69	66	108	85	136	130	74	64	57	58
16	56	72	69	67	97	84	118	148	71	60	55	84
17	56	71	75	67	94	86	106	118	66	60	55	67
18	57	130	74	70	91	85	109	102	68	58	56	62
19	101	140	75	73	89	82	105	233	66	57	54	60
20	80	103	72	78	123	82	116	288	74	55	54	57
21	62	89	74	79	260	83	114	217	91	56	53	56
22	59	79	74	84	231	82	104	160	76	55	53	55
23	57	73	86	83	189	84	99	119	68	55	56	58
24	56	77	72	79	172	84	102	99	64	53	57	57
25	123	102	72	78	147	82	96	88	61	59	55	56
26	165	98	74	75	126	79	89	80	58	62	52	54
27	99	91	90	75	109	77	95	79	57	62	58	58
28	79	101	74	74	102	78	104	86	61	62	57	58
29	71	98	74	71	---	79	97	217	62	64	55	59
30	66	93	74	67	---	89	92	130	59	61	55	58
31	67	---	75	65	---	135	---	95	---	60	60	---
TOTAL	2166	2446	2332	2229	3425	2806	3235	4156	2227	2578	1863	1810
MEAN	69.9	81.5	75.2	71.9	122	90.5	108	134	74.2	83.2	60.1	60.3
MAX	165	140	90	90	260	135	151	323	91	201	88	84
MIN	53	61	69	63	68	77	89	72	57	53	52	54
CFSM	.15	.18	.16	.16	.26	.20	.23	.29	.16	.18	.13	.13
IN.	.17	.20	.19	.18	.28	.23	.26	.33	.18	.21	.15	.15

CAL YR 1980 TOTAL 123821 MEAN 338 MAX 3600 MIN 48 CFSM .73 IN 9.95
WTR YR 1981 TOTAL 31273 MEAN 85.7 MAX 323 MIN 52 CFSM .19 IN 2.51

01671100 LITTLE RIVER NEAR DOSWELL, VA

LOCATION.--Lat 37°52'21", long 77°30'48", Hanover County, Hydrologic Unit 02080106, on left bank at downstream side of bridge on State Highway 685, 0.8 mi (1.3 km) southwest of Verdon, 2.9 mi (4.7 km) west of Doswell, and 9.6 mi (15.4 km) upstream from mouth.

DRAINAGE AREA.--107 mi² (277 km²).

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 132.30 ft (40.325 m) National Geodetic Vertical Datum of 1929 (levels by La Prade Bros., Engineers).

REMARKS.--Records good. Frequent quarry dewatering by the General Crushed Stone Co. above gage adds about 0.5 ft³/s (0.014 m³/s) at times. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--20 years, 99.3 ft³/s (2.812 m³/s), 12.60 in/yr (320 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft³/s (340 m³/s) Aug. 21, 1969, gage height, 11.09 ft (3.380 m), from rating curve extended above 7,600 ft³/s (220 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 0.10 ft³/s (0.003 m³/s) Sept. 25, 26, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 164 ft³/s (4.64 m³/s) Feb. 13, gage height, 3.13 ft (0.954 m), no peak above base of 650 ft³/s (18 m³/s); minimum, 0.72 ft³/s (0.020 m³/s) Sept. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.7	22	44	26	21	42	62	34	25	27	2.9	1.2
2	2.1	18	38	25	28	38	66	33	28	41	2.9	1.2
3	8.5	16	33	24	47	35	54	31	26	114	2.9	1.1
4	11	18	29	21	48	33	44	28	24	105	4.0	1.0
5	8.5	24	26	20	38	38	42	26	26	89	3.3	1.1
6	9.5	25	25	18	33	46	77	23	26	104	3.6	1.1
7	9.5	25	24	18	27	52	80	23	26	121	4.0	1.2
8	8.0	24	23	18	32	47	66	21	24	115	11	1.2
9	6.2	24	24	18	39	41	54	19	22	75	11	1.3
10	4.3	24	26	17	36	37	54	19	22	47	12	1.2
11	4.1	23	27	15	53	34	49	27	22	60	13	1.1
12	3.9	19	28	14	112	33	47	91	20	55	16	.90
13	3.3	17	27	12	140	32	59	83	20	40	16	.86
14	2.9	17	26	12	102	29	67	54	20	30	14	.82
15	2.7	16	25	14	71	27	73	49	19	23	13	.79
16	2.7	23	25	15	57	28	64	58	17	20	11	4.7
17	2.3	31	24	16	49	28	57	46	17	18	9.1	2.8
18	2.3	55	23	17	45	27	54	39	16	17	7.7	2.3
19	11	71	22	17	42	27	49	85	15	15	7.3	1.7
20	21	74	22	19	58	27	54	136	16	13	7.5	1.5
21	28	57	20	21	121	26	58	127	18	12	5.9	2.4
22	24	43	19	24	129	26	52	98	16	8.9	5.2	1.5
23	18	35	19	26	107	26	49	68	14	5.4	4.6	.95
24	16	34	21	26	90	26	45	49	12	3.8	3.7	.80
25	38	47	21	25	73	27	38	39	11	4.9	3.0	.83
26	72	52	21	26	62	26	35	31	10	5.4	2.3	.93
27	68	51	20	27	52	25	36	26	9.6	5.4	1.9	.87
28	56	52	19	29	46	25	40	39	8.5	4.2	1.6	1.1
29	41	48	22	29	---	25	37	78	7.4	4.8	1.3	1.8
30	31	47	25	26	---	29	34	36	6.6	3.8	1.3	.89
31	25	---	27	22	---	62	---	26	---	3.3	1.2	---
TOTAL	542.5	1032	775	637	1758	1024	1596	1542	544.1	1190.9	204.2	41.14
MEAN	17.5	34.4	25.0	20.5	62.8	33.0	53.2	49.7	18.1	38.4	6.59	1.37
MAX	72	74	44	29	140	62	80	136	28	121	16	4.7
MIN	1.7	16	19	12	21	25	34	19	6.6	3.3	1.2	.79
CFSM	.16	.32	.23	.19	.59	.31	.50	.46	.17	.36	.06	.01
IN.	.19	.36	.27	.22	.61	.36	.55	.54	.19	.41	.07	.01

CAL YR 1980 TOTAL 29017.03 MEAN 79.3 MAX 1620 MIN .93 CFSM .74 IN 10.09
WTR YR 1981 TOTAL 10886.84 MEAN 29.8 MAX 140 MIN .79 CFSM .28 IN 3.78

01672500 SOUTH ANNA RIVER NEAR ASHLAND, VA

LOCATION.--Lat 37°47'48", long 77°32'57", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 54, 4.5 mi (7.2 km) northwest of Ashland, and 7.6 mi (12.2 km) upstream from Newfound River.

DRAINAGE AREA.--394 mi² (1,020 km²).

PERIOD OF RECORD.--October 1930 to current year.

REVISED RECORDS.--WSP 801: 1935(M). WSP 1502: 1935, 1939. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 83.74 ft (25.524 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Since 1966, diversion 150 ft (46 m) above station for town of Ashland water supply has averaged less than 0.6 ft³/s (0.017 m³/s). Capacity of the diversion pickup is about 1.5 ft³/s (0.042 m³/s). Small diurnal fluctuation at low flow in some years caused by gristmills above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--51 years, 366 ft³/s (10.37 m³/s), 12.61 in/yr (320 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,100 ft³/s (484 m³/s) Aug. 23, 1969, gage height, 24.99 ft (7.617 m); minimum, 0.10 ft³/s (0.003 m³/s) Sept. 12, 1966, caused by diversion above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 15, 1928, reached a stage of about 24 ft (7.3 m), discharge, about 14,500 ft³/s (411 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 785 ft³/s (22.2 m³/s) Feb. 13, gage height, 4.79 ft (1.460 m), no peak above base of 2,200 ft³/s (62 m³/s); minimum, 12 ft³/s (0.34 m³/s) Sept. 3, gage height, 1.18 ft (0.360 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	64	139	85	104	145	176	107	85	35	25	15
2	31	58	118	88	111	141	210	100	86	108	42	15
3	62	54	104	73	141	133	173	95	89	281	44	14
4	88	56	94	77	97	126	142	107	107	316	56	25
5	68	80	89	94	156	135	141	93	142	278	50	24
6	52	81	85	94	138	156	279	85	113	428	40	30
7	47	72	83	82	119	177	235	80	101	757	41	34
8	45	81	82	77	118	162	196	76	92	506	92	42
9	38	72	83	78	121	140	163	74	82	229	111	40
10	35	71	89	75	113	127	159	75	71	137	82	190
11	33	72	91	70	237	119	146	100	64	270	77	91
12	31	78	92	67	581	114	140	270	59	242	67	64
13	28	61	92	64	666	109	192	215	57	106	62	70
14	26	59	89	62	346	107	246	160	57	76	52	48
15	26	59	83	67	230	104	270	135	54	65	45	42
16	26	60	81	70	181	102	221	160	53	52	40	43
17	27	61	81	71	160	101	186	170	48	46	38	39
18	27	149	78	77	152	100	179	115	50	40	35	34
19	66	190	77	79	149	102	168	210	46	38	32	29
20	91	205	75	83	197	101	201	490	44	35	29	27
21	94	159	69	95	361	97	215	370	48	33	28	26
22	64	124	83	108	525	95	173	270	45	34	26	21
23	49	104	82	111	369	98	163	210	46	27	25	21
24	40	107	75	108	281	100	153	160	47	25	23	20
25	106	155	83	101	230	96	137	125	42	25	21	18
26	162	154	89	101	201	95	138	99	36	33	18	17
27	232	159	104	98	169	93	128	88	30	39	17	15
28	133	159	88	95	152	90	118	100	26	40	16	16
29	100	150	79	94	---	88	111	270	23	43	14	17
30	82	154	82	81	---	106	108	135	21	31	14	15
31	72	---	82	75	---	181	---	86	---	28	14	---
TOTAL	2013	3108	2721	2600	6405	3640	5269	4830	1864	4403	1276	1102
MEAN	64.9	104	87.8	83.9	229	117	176	156	62.1	142	41.2	36.7
MAX	232	205	139	111	666	181	279	490	142	757	111	190
MIN	26	54	69	62	97	88	108	74	21	25	14	14
CFSM	.17	.26	.22	.21	.58	.30	.45	.40	.16	.36	.11	.09
IN.	.19	.29	.26	.25	.60	.34	.50	.46	.18	.42	.12	.10

CAL YR 1980 TOTAL 114453 MEAN 313 MAX 3060 MIN 12 CFSM .79 IN 10.81
WTR YR 1981 TOTAL 39231 MEAN 107 MAX 757 MIN 14 CFSM .27 IN 3.70

01673000 PAMUNKEY RIVER NEAR HANOVER, VA
(National stream-quality accounting network station)

LOCATION.--Lat 37°46'03", long 77°19'57", Hanover County, Hydrologic Unit 02080106, on right bank 100 ft (30 m) downstream from bridge on State Highway 614, 0.3 mi (0.5 km) upstream from Mechumps Creek, 2.0 mi (3.2 km) east of Hanover, and 7.0 mi (11.3 km) upstream from Millpond Creek.

DRAINAGE AREA.--1,081 mi² (2,800 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1302.

REVISED RECORDS.--WSP 1302: 1944(M). WSP 1382: 1949. WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 14.72 ft (4.487 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 15, 1976, nonrecording gage at same site and datum, and since June 11, 1957, auxiliary nonrecording gage 1.2 mi (1.9 km) downstream from base gage.

REMARKS.--Records good. Some regulation since January 1972 by Lake Anna, capacity, 373,000 acre-ft (460 hm³) and occasional diurnal fluctuation at low flow caused by mill above station. Unknown amount of diversion for irrigation above gage.

AVERAGE DISCHARGE.--40 years, 997 ft³/s (28.24 m³/s), 12.52 in/yr (318 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,300 ft³/s (1,140 m³/s) Aug. 23, 1969, gage height, 31.12 ft (9.485 m), from floodmarks, from rating curve extended above 22,000 ft³/s (620 m³/s); minimum, 12 ft³/s (0.34 m³/s) Sept. 12, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1928 reached a stage of 32.6 ft (9.94 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,790 ft³/s (50.7 m³/s) July 4, gage height, 9.07 ft (2.765 m); minimum daily, 78 ft³/s (2.21 m³/s) Sept. 4-6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	176	349	220	178	332	435	272	243	135	99	79
2	98	159	314	211	270	311	416	270	231	276	93	79
3	117	147	274	194	326	289	411	264	272	374	93	80
4	190	141	245	179	321	268	332	245	258	1040	104	78
5	181	167	226	133	268	268	287	237	239	1150	122	78
6	144	204	216	193	354	328	430	217	264	861	120	78
7	122	200	207	242	330	361	650	206	241	1100	113	80
8	111	182	204	190	311	372	564	195	227	1170	217	82
9	108	181	203	173	308	332	461	183	200	735	339	84
10	103	179	208	181	313	287	418	178	183	418	212	86
11	101	172	216	165	363	264	404	227	198	287	155	107
12	96	167	219	151	848	247	374	696	187	505	147	196
13	92	179	220	156	1230	237	413	725	160	372	157	133
14	87	166	220	160	999	225	559	637	151	225	139	108
15	87	161	212	162	627	214	620	461	155	167	126	98
16	87	157	206	166	454	212	597	437	146	141	116	129
17	86	159	198	171	374	216	500	486	133	130	107	182
18	87	242	198	178	336	212	459	368	123	123	100	147
19	115	473	198	187	315	206	435	538	123	116	95	117
20	195	486	194	193	343	204	425	1220	119	108	95	104
21	184	447	175	195	796	204	549	1080	136	102	90	98
22	177	353	149	217	1070	200	486	864	152	102	85	93
23	145	282	196	247	1040	200	423	615	132	99	86	87
24	125	251	216	249	823	214	402	439	119	89	89	86
25	158	302	181	237	658	210	381	336	116	87	86	85
26	459	374	146	241	533	200	336	278	108	95	82	84
27	465	370	212	247	444	193	323	235	99	99	79	80
28	429	388	269	245	370	182	330	219	98	105	87	82
29	296	393	223	225	---	180	317	572	95	354	91	81
30	180	365	207	225	---	182	293	518	91	157	87	80
31	173	---	199	187	---	332	---	306	---	111	84	---
TOTAL	5084	7623	6700	6120	14602	7682	13030	13524	4999	10833	3695	2981
MEAN	164	254	216	197	522	248	434	436	167	349	119	99.4
MAX	465	486	349	249	1230	372	650	1220	272	1170	339	196
MIN	86	141	146	133	178	180	287	178	91	87	79	78
CFSM	.15	.24	.20	.18	.48	.23	.40	.40	.15	.32	.11	.09
IN.	.17	.26	.23	.21	.50	.26	.45	.47	.17	.37	.13	.10

CAL YR 1980 TOTAL 320111 MEAN 875 MAX 7740 MIN 72 CFSM .81 IN 11.02
WTR YR 1981 TOTAL 96873 MEAN 265 MAX 1230 MIN 78 CFSM .25 IN 3.33

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to January 1976.
WATER TEMPERATURES: October 1945 to September 1946, April 1968 to January 1976.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
OCT											
06...	1000	147	98	6.4	14.5	2.5	8.0	59	25	30	6
NOV											
04...	1030	138	114	6.8	9.0	.50	9.0	50	70	25	7
DEC											
03...	1450	274	102	6.7	7.0	2.4	11.4	210	21	23	3
JAN											
14...	1415	167	156	7.1	1.0	1.8	14.2	K7	K7	32	11
FEB											
10...	1015	311	100	7.3	1.0	3.0	15.5	34	53	23	0
APR											
07...	0900	714	92	6.9	13.0	18	8.8	240	36	21	2
MAY											
05...	0945	245	102	7.1	16.5	2.3	--	25	38	23	0
JUN											
02...	1130	229	105	7.1	21.0	16	6.0	170	180	22	3
JUL											
10...	0830	451	73	6.9	25.5	17	6.5	--	140	19	0
AUG											
13...	0800	159	106	7.0	23.0	1.3	6.9	120	330	27	8
SEP											
09...	1045	84	120	6.9	21.5	1.8	7.3	K31	95	27	5

K Result based on colony count outside optimal range.

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
OCT											
06...	7.0	3.1	9.5	2.7	24	16	4.9	.1	13	73	72
NOV											
04...	5.8	2.6	11	2.9	18	22	6.0	<.1	11	78	74
DEC											
03...	5.1	2.4	9.2	2.4	20	17	5.8	.1	15	68	70
JAN											
14...	8.2	2.9	16	2.6	21	31	6.2	<.1	16	102	97
FEB											
10...	5.7	2.2	8.5	1.8	26	15	6.0	<.1	13	66	66
APR											
07...	5.1	2.0	6.2	1.9	19	11	5.7	<.1	12	56	56
MAY											
05...	5.4	2.4	7.8	2.1	23	12	5.2	.1	12	72	63
JUN											
02...	5.3	2.2	7.7	2.8	19	14	5.4	.1	12	81	62
JUL											
10...	4.3	2.1	6.5	2.6	19	7.9	4.3	<.1	14	67	55
AUG											
13...	5.9	3.0	8.9	3.0	19	16	4.9	.1	13	81	68
SEP											
09...	5.7	3.1	11	2.6	22	19	6.1	.1	7.3	85	70

< Actual value is known to be less than the value shown.

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN,AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
OCT 06...	.31	.31	.050	.050	.35	.34	.66	.65	.080	.070	--
NOV 04...	.22	.22	.030	.020	.22	.22	.44	.44	.130	.110	<1
DEC 03...	.18	.18	.130	.100	.38	.24	.56	.42	.120	.080	--
JAN 14...	.23	.22	.040	.020	.29	.24	.52	.46	.170	.140	--
FEB 10...	.28	.29	.100	.090	.39	.22	.67	.51	.060	.030	<1
APR 07...	.12	.13	.070	.060	.70	.38	.82	.51	.090	.030	--
MAY 05...	.25	.24	.340	.340	.62	.59	.87	.83	.050	.030	<1
JUN 02...	.34	.34	.180	.130	.77	.59	1.1	.93	.090	.070	--
JUL 10...	.34	.31	.050	.060	.59	.39	.93	.70	.090	.040	--
AUG 13...	.37	.37	.070	.080	.41	.37	.78	.74	.080	.040	2
SEP 09...	.40	.40	.040	.050	.38	.24	.78	.64	.030	.030	--

< Actual value is known to be less than the value shown.

DATE	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)
OCT 06...	--	--	--	--	--	--	--	--	--	--	--
NOV 04...	<1	<50	30	<1	<1	10	10	<1	<1	5	1
DEC 03...	--	--	--	--	--	--	--	--	--	--	--
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
FEB 10...	<1	100	30	2	3	20	10	1	1	4	2
APR 07...	--	--	--	--	--	--	--	--	--	--	--
MAY 05...	<1	100	40	2	<1	10	<10	1	1	4	2
JUN 02...	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	--	--	--	--	--	--	--	--	--	--	--
AUG 13...	1	100	30	1	1	10	10	<1	<1	7	<1
SEP 09...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)
OCT 06...	--	--	--	--	--	--	--	--	--	--	--
NOV 04...	460	270	3	<1	110	90	<.1	<.1	<1	<1	<1
DEC 03...	--	--	--	--	--	--	--	--	--	--	--
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
FEB 10...	720	240	5	1	60	60	.1	.1	1	2	<1
APR 07...	--	--	--	--	--	--	--	--	--	--	--
MAY 05...	960	450	4	<1	130	110	1.0	.2	4	1	<1
JUN 02...	--	--	--	--	--	--	--	--	--	--	--
JUL 10...	--	--	--	--	--	--	--	--	--	--	--
AUG 13...	1300	390	8	<1	210	160	.1	.1	6	2	<1
SEP 09...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 06...	--	--	--	--	--	5.2	--	--	--	4	81
NOV 04...	<1	<1	<1	20	4	--	4.5	.1	13	1	100
DEC 03...	--	--	--	--	--	4.4	--	--	--	18	30
JAN 14...	--	--	--	--	--	7.0	--	--	--	4	100
FEB 10...	<1	<1	<1	70	6	--	3.8	.4	--	16	100
APR 07...	--	--	--	--	--	7.0	--	--	--	37	82
MAY 05...	<1	<1	<1	40	10	--	6.3	.4	170	14	80
JUN 02...	--	--	--	--	--	6.8	--	--	230	28	89
JUL 10...	--	--	--	--	--	11	--	--	180	27	96
AUG 13...	<1	<1	<1	30	<4	4.5	3.6	.8	270	21	100
SEP 09...	--	--	--	--	--	2.8	--	--	190	2	100

< Actual value is known to be less than the value shown.

01673000 PAMUNKEY RIVER NEAR HANOVER, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	NOV 4,80	MAY 5,81	JUN 2,81	JUL 10,81	AUG 13,81	SEP 9,81
TIME	1030	0945	1130	0830	0800	1045
TOTAL CELLS/ML	13	170	230	180	270	190
DIVERSITY: DIVISION	0.0	1.3	1.4	0.6	1.4	1.0
.CLASS	0.0	1.3	1.4	0.6	1.4	1.0
..ORDER	0.0	1.8	1.7	0.6	1.6	1.0
...FAMILY	0.0	2.0	2.0	0.6	2.2	1.4
....GENUS	0.0	2.2	2.0	0.6	2.2	1.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...OOCYSTACEAE												
....KIRCHNERIELLA	--	-	--	-	52#	22	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	--	-	--	-	--	-	--	-	--	-	82#	43
..ULOTRICHALES												
...CHAETOPHORACEAE												
....STIGEOCLONIUM	--	-	--	-	--	-	--	-	140#	53	--	-
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	--	-	13	8	--	-	--	-	--	-	--	-
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	13#	100	13	8	--	-	--	-	--	-	--	-
....MELOSIRA	--	-	26#	15	--	-	--	-	14	5	--	-
..PENNALES												
...ACHNANTHACEAE												
....COCCONEIS	--	-	--	-	13	6	--	-	--	-	--	-
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	--	-	--	-	14	5	--	-
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	--	-	--	-	27	14
...NAVICULACEAE												
....NAVICULA	--	-	26#	15	13	6	26	14	28	11	82#	43
...NITZSCHIACEAE												
....NITZSCHIA	--	-	13	8	26	11	--	-	28	11	--	-
...SURIRELLACEAE												
....SURIRELLA	--	-	--	-	--	-	--	-	14	5	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROOCOCCALES												
...CHROOCOCCACEAE												
....ANACYSTIS	--	-	77#	46	13	6	150#	86	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....APHANIZOMENON	--	-	--	-	120#	50	--	-	--	-	--	-
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	--	-	28	11	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

01673550 TOTOPOTOMOY CREEK NEAR STUDLEY, VA

LOCATION.--Lat 37°29'44", long 77°15'29", Hanover County, Hydrologic Unit 02080106, on right bank at downstream side of bridge on State Highway 606, 2.0 mi (3.2 km) southeast of Studley, 2.4 mi (3.9 km) downstream from Hawes millrace, and 4.1 mi (6.6 km) upstream from mouth.

DRAINAGE AREA.--26.2 mi^2 (67.9 km^2).

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Datum of gage is 38.36 ft (11.692 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, May 21 to July 2, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 640 ft^3/s (18.1 m^3/s) Feb. 25, 1979, gage height, 8.77 ft (2.673 m), from rating curve extended above 300 ft^3/s (8.5 m^3/s); minimum daily, 0.35 ft^3/s (0.010 m^3/s) Oct. 1-7, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 166 ft^3/s (4.70 m^3/s) at 1430 hours May 11, gage height, 5.55 ft (1.692 m), no other peak above base of 160 ft^3/s (4.5 m^3/s); minimum, 0.88 ft^3/s (0.025 m^3/s) July 21, 28, Sept. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	16	11	10	8.1	13	15	9.5	19	2.3	5.6	1.4
2	5.3	16	10	9.8	15	12	13	9.7	20	2.1	3.4	1.3
3	8.6	16	10	9.6	22	12	12	9.1	17	2.3	3.3	1.3
4	11	17	10	8.7	22	11	11	6.3	15	9.6	3.5	1.3
5	15	19	10	7.8	10	15	13	6.1	13	79	2.9	1.5
6	12	20	9.8	7.8	7.9	17	19	6.0	11	58	3.2	1.5
7	8.2	19	10	10	8.6	15	20	8.4	12	21	3.4	1.7
8	7.4	17	11	10	13	14	16	9.0	9.4	13	4.0	2.0
9	6.6	17	11	9.0	13	14	14	8.6	9.0	8.2	3.9	2.2
10	6.1	17	12	8.4	12	13	14	9.3	9.7	5.5	3.0	2.0
11	6.5	16	11	7.7	23	12	14	57	8.6	4.2	2.7	1.9
12	7.2	16	11	7.4	36	12	12	83	7.0	3.5	4.6	1.8
13	5.9	15	11	7.2	27	11	14	40	5.8	2.9	7.4	1.5
14	6.2	15	10	7.2	19	9.8	15	24	4.8	2.7	11	1.3
15	6.8	15	9.7	10	18	9.6	16	22	4.2	2.5	6.3	1.2
16	7.1	18	9.9	12	17	11	14	22	3.8	2.2	3.7	4.7
17	7.6	22	10	12	17	13	13	14	3.7	2.2	2.9	5.0
18	9.1	25	10	11	16	13	13	13	3.5	2.0	2.5	7.4
19	16	19	10	11	17	13	12	57	4.4	1.6	2.5	5.5
20	17	15	9.9	12	24	12	14	70	5.3	1.2	2.7	4.6
21	18	12	9.6	13	36	12	15	42	8.2	1.1	2.6	3.2
22	14	11	8.8	15	31	12	14	27	6.0	1.3	2.7	1.6
23	13	12	10	16	25	14	12	18	5.0	1.2	3.1	1.2
24	13	16	12	14	21	15	16	15	4.5	1.0	3.0	1.4
25	29	18	12	12	19	14	14	13	4.0	1.2	2.7	1.4
26	43	17	10	11	17	13	12	12	3.5	1.3	2.4	1.4
27	37	14	9.9	11	15	11	13	12	3.2	1.3	2.2	1.5
28	26	16	11	11	15	11	12	20	2.9	1.2	2.0	1.6
29	20	15	12	9.8	---	12	12	52	2.8	3.1	1.7	2.2
30	18	13	12	8.5	---	14	9.7	41	2.5	3.2	1.7	2.7
31	17	---	11	8.4	---	14	---	24	---	8.0	1.6	---
TOTAL	422.6	494	325.6	318.3	524.6	394.4	413.7	760.0	228.8	249.9	108.2	69.3
MEAN	13.6	16.5	10.5	10.3	18.7	12.7	13.8	24.5	7.63	8.06	3.49	2.31
MAX	43	25	12	16	36	17	20	83	20	79	11	7.4
MIN	5.0	11	8.8	7.2	7.9	9.6	9.7	6.0	2.5	1.0	1.6	1.2
CFSM	.52	.63	.40	.39	.71	.49	.53	.94	.29	.31	.13	.09
IN.	.60	.70	.46	.45	.74	.56	.59	1.08	.32	.35	.15	.10

CAL YR 1980 TOTAL 10501.1 MEAN 28.7 MAX 205 MIN 2.6 CFSM 1.10 IN 14.91
WTR YR 1981 TOTAL 4309.4 MEAN 11.8 MAX 83 MIN 1.0 CFSM .45 IN 6.12

01673800 PO RIVER NEAR SPOTSYLVANIA, VA

LOCATION.--Lat 38°10'17", long 77°35'42", Spotsylvania County, Hydrologic Unit 02080105, on right bank at upstream side of bridge on State Highway 208, 1.6 mi (2.6 km) north of Snell, 2.0 mi (3.2 km) south of Spotsylvania, 4.8 mi (7.7 km) downstream from Gladys Run, and 4.9 mi (7.9 km) upstream from U.S. Highway 1.

DRAINAGE AREA.--77.4 mi² (200.5 km²).

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 183.76 ft (56.010 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1964, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--19 years, 75.7 ft³/s (2.144 m³/s), 13.28 in/yr (337 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,900 ft³/s (309 m³/s) June 22, 1972, gage height, 19.03 ft (5.800 m), from rating curve extended above 3,400 ft³/s (96 m³/s); minimum daily, 0.10 ft³/s (0.003 m³/s) Oct. 24-29, 1963, Sept. 6-13, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 675 ft³/s (19.1 m³/s) May 12, gage height, 6.54 ft (1.993 m), no peak above base of 900 ft³/s (25 m³/s); minimum, 0.40 ft³/s (0.011 m³/s) Sept. 21, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.81	2.5	24	13	12	48	31	22	8.8	2.4	7.1	1.7
2	.92	21	18	13	20	34	29	23	13	2.2	5.1	1.6
3	1.2	14	15	13	31	27	27	22	17	2.2	4.1	2.2
4	1.8	6.7	12	12	37	22	22	18	21	4.5	3.8	3.2
5	1.6	4.8	11	10	24	31	19	15	17	17	3.3	2.8
6	1.2	4.5	11	9.6	18	44	20	14	14	61	3.2	2.5
7	1.0	4.6	10	9.9	15	46	23	13	12	59	3.9	2.2
8	1.0	4.5	12	10	15	37	21	11	9.7	23	4.2	2.1
9	.92	4.0	14	9.6	17	31	17	9.9	8.0	11	4.4	2.5
10	1.2	4.8	14	9.2	16	28	17	8.9	7.5	7.4	3.9	1.9
11	1.4	5.3	15	8.9	57	26	21	22	7.1	5.3	3.8	1.5
12	1.6	5.5	15	7.5	139	26	19	410	5.9	4.2	13	1.3
13	1.6	5.3	14	6.8	81	24	29	259	5.3	3.5	5.8	1.4
14	1.6	4.8	13	6.8	63	23	59	68	6.2	3.0	4.2	1.6
15	1.8	4.8	11	6.8	54	23	48	47	5.7	2.5	3.8	.90
16	1.8	4.8	11	6.8	47	22	42	66	4.8	2.2	3.3	1.1
17	1.8	6.5	11	7.2	37	23	33	48	4.3	2.0	2.9	1.0
18	2.2	42	11	7.9	32	24	32	32	3.7	1.7	2.6	1.1
19	5.8	47	11	8.2	27	24	35	64	3.2	1.5	2.2	.97
20	4.2	32	10	8.6	65	25	31	151	3.3	1.8	2.1	.72
21	3.8	21	10	9.2	252	24	29	104	3.4	1.4	1.8	.47
22	4.8	12	9.2	9.9	134	21	26	54	4.9	1.2	1.7	.60
23	4.8	8.6	8.6	11	90	18	23	34	4.5	1.0	1.4	.83
24	4.8	10	9.9	11	99	17	25	25	3.9	.83	1.4	1.0
25	13	26	11	12	82	16	23	21	3.3	1.5	1.2	.93
26	28	36	10	13	69	15	20	17	2.9	1.7	1.1	.68
27	22	30	9.2	13	67	15	21	14	2.5	2.3	1.1	.79
28	12	31	9.2	14	65	14	24	12	2.2	2.7	1.2	.73
29	5.5	30	11	14	---	13	25	14	2.1	17	1.1	.49
30	3.2	27	13	15	---	15	22	12	1.9	22	1.3	.40
31	2.8	---	15	14	---	24	---	9.5	---	13	1.7	---
TOTAL	140.15	461.0	379.1	320.9	1665	780	813	1640.3	209.1	282.03	101.7	41.21
MEAN	4.52	15.4	12.2	10.4	59.5	25.2	27.1	52.9	6.97	9.10	3.28	1.37
MAX	28	47	24	15	252	48	59	410	21	61	13	3.2
MIN	.81	2.5	8.6	6.8	12	13	17	8.9	1.9	.83	1.1	.40
CFSM	.06	.20	.16	.13	.77	.33	.35	.68	.09	.12	.04	.02
IN.	.07	.22	.18	.15	.80	.37	.39	.79	.10	.14	.05	.02

CAL YR 1980 TOTAL 22378.75 MEAN 61.1 MAX 945 MIN .64 CFSM .79 IN 10.76
WTR YR 1981 TOTAL 6833.49 MEAN 18.7 MAX 410 MIN .40 CFSM .24 IN 3.28

01674000 MATTAPONI RIVER NEAR BOWLING GREEN, VA

LOCATION.--Lat 38°03'42", long 77°23'10", Caroline County, Hydrologic Unit 02080105, on right bank 0.1 mi (0.2 km) upstream from bridge on State Highway 605, 2.2 mi (3.5 km) northwest of Bowling Green, 2.4 mi (3.9 km) upstream from South River, and 7.1 mi (11.4 km) downstream from confluence of Matta and Poni Rivers.

DRAINAGE AREA.--257 mi^2 (666 km^2).

PERIOD OF RECORD.--September 1942 to current year.

REVISED RECORDS.--WSP 1382: 1943, 1945(M), 1948(M), 1949, 1953(M). WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 85.14 ft (25.951 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 17, 1978, gage located on left bank at same datum.

REMARKS.--Records good. Some diurnal fluctuation from gristmill upstream on Po River. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--39 years, 239 ft^3/s (6.768 m^3/s), 12.63 in/yr (321 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft^3/s (379 m^3/s) June 23, 1972, gage height, 18.95 ft (5.776 m), from high-water mark in well, from rating curve extended above 8,100 ft^3/s (230 m^3/s); no flow at times in September and October 1954 and September 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1928 reached a stage of 19.5 ft (5.94 m) based on relative difference in stage between this flood and flood of Oct. 17, 1942, at Milford 4 mi (6 km) downstream, discharge, 15,000 ft^3/s (425 m^3/s), from rating curve extended above 8,100 ft^3/s (230 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 655 ft^3/s (18.5 m^3/s) May 14, gage height, 5.87 ft (1.789 m), no peak above base of 2,000 ft^3/s (57 m^3/s); minimum, 0.50 ft^3/s (0.014 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	25	76	39	38	150	103	75	48	7.1	25	3.4
2	4.0	19	69	38	46	126	133	82	51	6.9	17	3.5
3	6.9	16	59	33	68	102	111	73	56	6.7	13	3.2
4	12	33	49	39	72	92	88	64	66	18	28	2.8
5	11	36	43	34	84	98	78	56	71	34	22	2.9
6	8.9	32	41	31	69	149	106	49	66	98	14	2.8
7	6.4	27	37	29	50	145	100	44	58	157	12	2.8
8	6.0	23	37	28	53	126	87	40	48	138	13	4.2
9	5.7	22	37	27	53	105	79	35	40	78	13	14
10	5.2	25	43	26	53	93	82	32	37	49	13	13
11	4.8	27	43	25	77	85	76	57	37	35	11	7.5
12	5.5	24	42	24	228	78	74	345	31	26	9.8	5.4
13	4.8	24	41	24	259	75	129	487	28	21	15	4.1
14	4.4	26	39	23	212	69	168	612	25	17	18	3.4
15	4.1	27	37	24	167	63	184	506	23	14	14	3.3
16	4.0	27	36	29	141	61	157	315	22	12	11	4.8
17	4.0	28	35	33	116	65	135	267	19	10	10	7.8
18	4.5	68	34	34	100	63	124	206	16	9.1	8.6	8.1
19	34	133	33	35	91	63	108	228	14	8.1	7.1	6.0
20	27	113	31	36	109	64	111	361	14	7.4	6.0	5.5
21	16	85	29	40	267	63	119	398	17	6.7	5.4	4.4
22	13	63	29	42	375	60	101	355	18	6.1	5.1	3.3
23	11	49	28	45	420	56	91	231	15	5.7	4.6	2.7
24	8.9	45	29	46	365	53	105	151	13	5.4	4.3	2.3
25	28	66	32	43	298	50	110	107	14	6.1	4.1	1.4
26	107	80	35	43	238	47	88	82	12	7.6	3.8	1.5
27	102	82	31	44	189	45	81	66	11	12	3.5	1.6
28	82	89	29	44	164	43	86	60	9.2	13	4.5	1.8
29	60	93	32	41	---	42	82	59	8.3	12	4.6	.90
30	41	85	37	39	---	53	75	55	7.1	11	3.2	.60
31	32	---	38	38	---	91	---	50	---	24	3.3	---
TOTAL	667.7	1492	1211	1076	4402	2475	3171	5548	894.6	861.9	326.9	129.00
MEAN	21.5	49.7	39.1	34.7	157	79.8	106	179	29.8	27.8	10.5	4.30
MAX	107	133	76	46	420	150	184	612	71	157	28	14
MIN	3.6	16	28	23	38	42	74	32	7.1	5.4	3.2	.60
CFSM	.08	.19	.15	.14	.61	.31	.41	.70	.12	.11	.04	.02
IN.	.10	.22	.18	.16	.64	.36	.46	.80	.13	.12	.05	.02

CAL YR 1980 TOTAL 75744.80 MEAN 207 MAX 2100 MIN 1.8 CFSM .81 IN 10.96
WTR YR 1981 TOTAL 22255.10 MEAN 61.0 MAX 612 MIN .60 CFSM .24 IN 3.22

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA
(National stream-quality accounting network station)

LOCATION.--Lat 37°53'16", long 77°09'48", King and Queen County, Hydrologic Unit 02080105, on left bank 0.4 mi (0.6 km) upstream from bridge on State Highway 628, 2.4 mi (3.9 km) north of Beulahville, and 2.7 mi (4.3 km) downstream from Maracossic Creek.

DRAINAGE AREA.--601 mi² (1,557 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1941 to current year.

REVISED RECORDS.--WSP 2103: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 12.43 ft (3.789 m) National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation). Prior to Oct. 14, 1942, nonrecording gage, and Oct. 14, 1942, to Aug. 8, 1974, water-stage recorder at site 80 ft (24 m) upstream at same datum.

REMARKS.--Records good. Diurnal fluctuation at times during low flow caused by gristmill on Po River.

AVERAGE DISCHARGE.--40 years, 592 ft³/s (16.77 m³/s), 13.38 in/yr (340 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft³/s (479 m³/s) June 25, 1972, gage height, 23.97 ft (7.306 m), from floodmarks; maximum gage height, 24.04 ft (7.327 m) Aug. 23, 1969; minimum discharge, 5.9 ft³/s (0.17 m³/s) Sept. 14, 1966, gage height, 0.94 ft (0.287 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 916 ft³/s (25.9 m³/s) May 21, gage height, 8.79 ft (2.679 m); minimum daily, 9.9 ft³/s (0.28 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	136	264	136	138	355	355	216	286	36	59	15
2	19	115	234	135	164	323	361	208	219	47	45	13
3	34	99	209	130	225	300	348	210	208	48	46	13
4	89	89	186	122	219	267	331	199	203	101	49	15
5	107	119	171	147	246	263	282	187	188	390	51	16
6	84	144	156	174	257	294	331	170	175	424	42	14
7	69	151	150	137	220	333	396	159	169	376	51	15
8	53	131	158	130	196	337	374	137	161	329	98	14
9	43	116	147	121	209	302	310	125	144	280	149	19
10	35	110	147	119	211	273	293	116	147	219	113	27
11	31	113	153	103	257	249	285	169	175	183	80	36
12	30	113	156	97	389	233	267	508	154	156	64	37
13	28	105	144	88	450	221	274	726	135	123	63	37
14	26	98	138	85	483	210	323	847	130	95	52	30
15	25	95	133	89	429	198	405	889	138	80	42	24
16	23	94	131	101	372	190	402	867	121	64	38	29
17	23	95	130	112	322	193	369	735	105	54	40	92
18	22	182	122	111	290	203	334	544	87	50	34	200
19	79	279	121	117	267	201	306	592	76	42	30	157
20	146	346	118	123	278	197	318	807	69	36	26	109
21	154	319	106	133	415	190	360	907	112	33	26	78
22	121	259	124	148	575	186	355	878	129	32	24	51
23	86	214	119	161	669	185	309	722	127	35	23	35
24	73	187	122	165	696	192	290	531	97	30	22	28
25	95	222	132	160	689	182	279	387	77	28	20	20
26	299	248	160	162	602	170	273	301	62	32	18	17
27	431	270	171	167	494	161	259	242	52	47	17	14
28	375	290	134	164	409	154	256	222	45	70	15	12
29	268	308	137	151	---	149	253	235	40	99	14	10
30	208	298	146	141	---	150	235	250	35	89	13	9.9
31	168	---	137	122	---	242	---	308	---	78	15	---
TOTAL	3261	5345	4656	4051	10171	7103	9533	13394	3866	3706	1379	1186.9
MEAN	105	178	150	131	363	229	318	432	129	120	44.5	39.6
MAX	431	346	264	174	696	355	405	907	286	424	149	200
MIN	17	89	106	85	138	149	235	116	35	28	13	9.9
CFSM	.18	.30	.25	.22	.60	.38	.53	.72	.22	.20	.07	.07
IN.	.20	.33	.29	.25	.63	.44	.59	.83	.24	.23	.09	.07

CAL YR 1980 TOTAL 169997.0 MEAN 464 MAX 2550 MIN 12 CFSM .77 IN 10.52
WTR YR 1981 TOTAL 67651.9 MEAN 185 MAX 907 MIN 9.9 CFSM .31 IN 4.19

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968, 1969, 1979 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)
NOV 04...	1330	87	64	6.4	9.0	.60	9.9	99	105	15	2
JAN 14...	1015	84	67	6.8	.5	2.2	12.8	K9	K8	15	6
MAR 04...	0830	273	60	6.7	6.5	3.2	11.7	15	31	15	9
MAY 05...	1415	187	59	6.9	17.0	3.2	--	31	25	14	2
JUL 10...	1215	218	50	6.9	26.5	4.3	6.7	--	98	14	1
SEP 09...	1345	19	51	6.6	22.0	3.5	7.8	130	130	16	0

K Result based on colony count outside optimal range.

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 04...	3.3	1.7	4.1	2.1	8.0	12	5.1	<.1	9.7	54	43
JAN 14...	3.3	1.6	4.5	1.7	9.0	8.6	6.2	<.1	12	49	44
MAR 04...	3.5	1.6	4.1	1.9	6.0	14	5.7	<.1	10	53	45
MAY 05...	3.3	1.5	4.4	1.4	12	6.3	5.1	<.1	7.9	50	38
JUL 10...	3.3	1.4	4.3	1.5	13	4.6	4.3	<.1	8.1	50	37
SEP 09...	3.6	1.6	3.0	1.4	16	3.3	4.1	<.1	6.5	48	38

< Actual value is known to be less than the value shown.

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
NOV 04...	.04	.03	.030	.020	.15	.14	.19	.17	.030	.010	<1
JAN 14...	.17	.16	.040	.020	.14	.12	.31	.28	.030	<.010	--
MAR 04...	.19	.14	.060	.040	.36	.30	.55	.44	.040	<.010	<1
MAY 05...	.12	.13	.070	.060	.51	.44	.63	.57	.050	.030	--
JUL 10...	.11	.12	.010	.010	.58	.37	.69	.49	.060	.020	5
SEP 09...	.08	.07	.020	.020	.23	.24	.31	.31	.040	.030	--

< Actual value is known to be less than the value shown.

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)
NOV											
04...	<1	<50	40	1	1	10	10	1	<1	3	<1
JAN											
14...	--	--	--	--	--	--	--	--	--	--	--
MAR											
04...	<1	100	100	<1	<1	10	<10	1	<1	4	1
MAY											
05...	--	--	--	--	--	--	--	--	--	--	--
JUL											
10...	1	100	30	2	3	10	<10	1	1	2	1
SEP											
09...	1	--	<50	1	--	--	<10	--	--	4	--

< Actual value is known to be less than the value shown.

DATE	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)	NICKEL, DISSOLVED (UG/L AS NI)	SELENIUM, TOTAL (UG/L AS SE)
NOV											
04...	910	310	3	<1	140	120	<.1	<.1	2	1	<1
JAN											
14...	--	--	--	--	--	--	--	--	--	--	--
MAR											
04...	850	250	9	2	130	120	.1	.1	4	<1	<1
MAY											
05...	--	--	--	--	--	--	--	--	--	--	--
JUL											
10...	2300	760	8	1	150	140	.1	<.1	3	3	<1
SEP											
09...	--	290	13	--	--	170	--	<.1	--	--	--

< Actual value is known to be less than the value shown.

DATE	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	SILVER, DISSOLVED (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C)	PHYTOPLANKTON, TOTAL (CELLS PER ML)	SEDIMENT, SUSPENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
04...	<1	<1	<1	20	<4	--	5.3	.1	39	4	64
JAN											
14...	--	--	--	--	--	3.7	--	--	--	7	100
MAR											
04...	<1	<1	<1	40	10	--	4.6	.6	52	16	100
MAY											
05...	--	--	--	--	--	8.8	--	--	170	8	89
JUL											
10...	<1	<1	<1	20	<4	--	8.5	.8	720	15	90
SEP											
09...	<1	--	<1	--	<10	--	9.7	.3	27	--	--

< Actual value is known to be less than the value shown.

01674500 MATTAPONI RIVER NEAR BEULAHVILLE, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	NOV 4,80	MAR 4,81	MAY 5,81	JUL 10,81	SEP 9,81
TIME	1330	0830	1415	1215	1345
TOTAL CELLS/ML	39	52	170	720	27
DIVERSITY: DIVISION	0.0	0.8	0.8	1.2	0.0
.CLASS	0.0	0.8	0.8	1.3	0.0
..ORDER	0.0	0.8	1.4	1.5	0.0
...FAMILY	0.0	1.5	1.4	1.7	0.0
....GENUS	0.0	1.5	1.4	1.7	0.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	--	-	--	-	14	2	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	13#	25	--	-	27	4	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....MELOSIRA	--	-	--	-	--	-	27	4	--	-
..PENNALES										
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	--	-	14	2	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	14	2	--	-
...NAVICULACEAE										
....NAVICULA	--	-	26#	50	13	8	--	-	27#	100
....NEIDIUM	--	-	--	-	--	-	14	2	--	-
...NITZSCHIACEAE										
....NITZSCHIA	--	-	13#	25	--	-	54	8	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....STENOCALYX	--	-	--	-	--	-	14	2	--	-
CRYPTOPHYTA (CRYPTOMONADS)										
.CRYPTOPHYCEAE										
..CRYPTOMONADALES										
...CRYPTOMONADACEAE										
....CRYPTOMONAS	39#	100	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	--	-	26#	15	--	-	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	120#	69	510#	72	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	13	8	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	27	4	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

01677000 WARE CREEK NEAR TOANO, VA

LOCATION.--Lat 37°20'17", long 76°47'12", New Kent County, Hydrologic Unit 02080107, on left bank at upstream side of bridge on State Highway 600, 0.8 mi (1.3 km) upstream from France Swamp, and 4.9 mi (7.9 km) north of Toano.

DRAINAGE AREA.--6.29 mi² (16.29 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 10 ft (3 m), from topographic map.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36 ft³/s (1.02 m³/s) Nov. 3, 1979, gage height, 2.30 ft (0.701 m); no flow at times September 1980 and July to September 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 33 ft³/s (0.93 m³/s) Oct. 25, gage height, 2.17 ft (0.661 m); no flow July 13-18, 23, 24, Aug. 1, 2, 16-20, Sept. 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.6	11	5.6	11	4.0	1.1	5.2	8.0	11	4.8	.00	5.7
2	6.1	9.5	7.6	11	8.1	1.1	5.5	7.1	7.8	7.3	.00	5.8
3	6.6	4.8	4.9	10	9.2	1.5	6.0	6.5	6.5	6.3	.03	5.8
4	8.9	4.8	4.7	10	5.7	2.1	6.8	6.4	5.1	7.9	.19	5.8
5	7.0	9.1	4.5	9.1	3.9	4.6	8.0	6.2	4.3	9.4	.53	5.8
6	5.1	7.0	4.7	7.6	3.1	2.4	12	5.5	3.8	7.4	1.1	5.7
7	4.2	5.8	4.8	10	3.4	.90	8.6	3.2	5.1	6.2	1.7	5.8
8	4.2	5.4	5.1	12	8.2	.83	7.4	2.2	4.8	5.1	3.5	5.2
9	4.7	4.1	5.2	10	6.2	.87	7.3	1.7	3.8	3.7	4.9	1.2
10	6.9	4.7	6.7	4.5	4.4	1.1	7.9	2.1	3.2	1.5	5.5	.00
11	8.3	4.7	7.7	3.9	8.6	1.1	8.0	3.4	2.6	.63	5.8	.09
12	9.5	4.1	6.7	2.1	10	.74	8.3	3.3	2.2	.01	6.1	.22
13	8.9	3.9	6.2	1.5	5.1	.56	9.8	2.6	2.1	.00	6.2	.43
14	8.0	3.9	6.4	1.7	3.3	.45	9.3	2.0	2.3	.00	1.8	.45
15	8.7	3.9	6.4	3.6	2.9	.24	9.1	1.8	2.4	.00	.19	.84
16	10	4.5	7.7	4.3	2.8	.92	8.6	2.0	2.3	.00	.00	8.0
17	10	4.9	10	4.3	3.6	2.5	8.8	1.9	2.1	.00	.00	6.8
18	10	13	11	3.9	4.4	2.0	9.2	1.9	2.1	.00	.00	7.4
19	17	9.7	11	3.6	4.9	1.8	9.2	4.5	2.5	.32	.00	6.0
20	14	6.2	11	4.4	6.8	2.1	11	6.4	5.3	.49	.00	2.9
21	10	4.9	11	6.2	8.2	1.9	11	4.3	11	.28	.29	2.3
22	11	4.7	10	7.4	5.2	1.7	9.8	2.7	6.9	.11	1.2	3.4
23	12	5.1	12	5.6	4.5	3.0	9.4	2.1	4.7	.00	3.1	4.0
24	11	6.4	14	4.4	4.6	3.6	11	2.3	3.3	.00	4.2	4.2
25	24	11	12	4.1	3.1	2.8	10	3.0	2.5	.14	5.1	4.8
26	14	8.6	9.3	4.8	2.3	2.3	9.3	4.5	2.0	1.5	5.5	5.1
27	6.6	6.0	8.2	5.3	1.3	2.1	9.8	5.9	1.7	.68	5.7	4.3
28	7.8	5.8	9.9	5.4	.93	2.1	10	10	1.5	.20	5.6	.81
29	12	5.6	12	4.7	---	2.1	9.7	11	1.5	1.4	5.6	.50
30	14	5.6	13	4.5	---	2.9	9.2	9.4	1.5	1.3	5.6	.55
31	12	---	12	4.3	---	5.0	---	11	---	.55	5.8	---
TOTAL	297.1	188.7	261.3	185.2	138.73	58.41	265.2	144.9	117.9	67.21	85.23	109.89
MEAN	9.58	6.29	8.43	5.97	4.95	1.88	8.84	4.67	3.93	2.17	2.75	3.66
MAX	24	13	14	12	10	5.0	12	11	11	9.4	6.2	8.0
MIN	4.2	3.9	4.5	1.5	.93	.24	5.2	1.7	1.5	.00	.00	.00
CFSM	1.52	1.00	1.34	.95	.79	.30	1.41	.74	.63	.35	.44	.58
IN.	1.76	1.12	1.55	1.10	.82	.35	1.57	.86	.70	.40	.50	.65

CAL YR 1980 TOTAL 2616.86 MEAN 7.15 MAX 24 MIN .00 CFSM 1.14 IN 15.47
WTR YR 1981 TOTAL 1919.77 MEAN 5.26 MAX 24 MIN .00 CFSM .84 IN 11.35

01677000 WARE CREEK NEAR TOANO, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--September 1979 to September 1981 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
NOV 05...	1400	10	80	6.7	12.0	10	26	7	8.4	1.2	3.2	2.0
JAN 09...	1500	8.7	109	6.9	4.0	15	36	11	12	1.4	3.6	2.5
MAY 06...	1330	6.1	104	7.6	19.5	15	37	5	13	1.2	3.7	1.2
JUL 09...	1430	3.6	97	7.7	33.0	65	37	3	13	1.1	4.7	.7
SEP 08...	1330	5.6	110	7.6	25.0	14	43	1	15	1.3	3.6	.4

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)
NOV 05...	19	4.9	6.8	<.1	6.2	60	44	<.010	.06	<.010	300
JAN 09...	25	3.7	8.0	<.1	8.1	64	55	.010	.36	.030	300
MAY 06...	32	3.0	6.7	<.1	6.9	61	55	<.010	.01	<.010	400
JUL 09...	34	1.8	5.6	<.1	12	82	60	<.010	.01	<.010	250
SEP 08...	42	1.9	6.3	<.1	11	82	65	<.010	.11	<.010	340

< Actual value is known to be less than the value shown.

01677000 WARE CREEK NEAR TOANO, VA--Continued

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	AME-TRYNE TOTAL	ATRA-TONE TOTAL (UG/L)	ATRA-ZINE, TOTAL (UG/L)	CHLOR-DANE, TOTAL (UG/L)	CYAN-AZINE TOTAL (UG/L)	CYPRA-ZINE TOTAL (UG/L)	DDD, TOTAL (UG/L)	DDE, TOTAL (UG/L)
SEP											
08...	1330	<.10	<.01	<.10	<.10	<.10	<.10	<.10	<.10	<.01	<.01

< Actual value is known to be less than the value shown.

DATE	DDT, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PER-THANE TOTAL (UG/L)
SEP											
08...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01

< Actual value is known to be less than the value shown.

DATE	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
SEP											
08...	<.1	<.1	<.10	<.01	<.10	<.10	<.1	<.10	<.01	<.01	<.01

< Actual value is known to be less than the value shown.

JAMES RIVER BASIN

02011400 JACKSON RIVER NEAR BACOVA, VA

LOCATION.--Lat 38°02'32", long 79°52'54", Bath County, Hydrologic Unit 02080201, on left bank 0.1 mi (0.2 km) downstream from ford, 1.8 mi (2.9 km) upstream from Back Creek, and 2.2 mi (3.5 km) southwest of Bacova.

DRAINAGE AREA.--158 mi² (409 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,639.20 ft (499.628 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those below 50 ft³/s (1.4 m³/s) during winter periods, which are fair.

AVERAGE DISCHARGE.--7 years, 167 ft³/s (4.729 m³/s), 14.35 in/yr (364 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,970 ft³/s (197 m³/s) Apr. 5, 1977, gage height, 13.39 ft (4.081 m), from rating curve extended above 1,300 ft³/s (37 m³/s) on basis of slope-area measurements at gage heights 8.88 ft (2.707 m), 11.40 ft (3.475 m), and 13.88 ft (4.231 m); minimum, 17 ft³/s (0.48 m³/s) Sept. 29, 30, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 11.40 ft (3.475 m), discharge, 4,800 ft³/s (136 m³/s), and flood of Dec. 26, 1973, reached a stage of 13.88 ft (4.231 m), discharge, 7,560 ft³/s (214 m³/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 11	0800	1790	50.7	7.79	2.374	May 28	1345	*3640	103	10.22	3.115

Minimum discharge, 17 ft³/s (0.48 m³/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	28	46	30	25	106	102	72	407	69	32	31
2	31	27	44	29	130	94	107	67	608	99	31	26
3	32	27	46	35	102	86	100	59	554	85	30	24
4	31	29	45	33	67	79	94	54	772	86	31	34
5	31	30	43	32	57	97	93	51	527	74	30	45
6	31	28	42	32	52	97	92	50	435	123	36	31
7	31	27	40	39	49	86	83	53	418	122	43	27
8	31	27	38	37	46	74	77	47	313	94	40	29
9	31	27	38	35	42	68	75	44	256	77	34	30
10	32	27	40	32	49	64	73	42	279	67	30	26
11	31	26	39	32	758	62	66	59	283	60	29	24
12	30	26	37	31	198	60	64	72	218	54	30	23
13	30	26	36	30	141	57	65	62	185	51	29	23
14	29	26	34	30	103	54	62	57	165	49	28	22
15	29	27	33	39	82	51	62	68	141	46	28	23
16	30	32	33	34	71	50	57	78	124	44	28	31
17	29	42	33	31	73	49	69	70	109	43	26	31
18	30	90	32	30	80	52	102	69	97	40	25	26
19	30	63	31	33	91	53	94	376	88	38	25	24
20	28	43	30	40	139	48	110	807	87	53	25	23
21	28	36	29	36	145	47	127	541	84	53	25	22
22	28	33	32	32	125	48	118	351	79	41	24	21
23	28	31	34	30	221	50	116	250	73	37	23	21
24	28	126	33	29	326	56	132	192	63	36	23	20
25	46	145	31	28	210	60	119	158	59	37	23	20
26	53	79	44	28	162	62	104	135	61	36	23	20
27	37	62	40	27	130	65	93	124	55	37	22	20
28	32	62	36	27	114	73	84	2140	50	34	22	19
29	31	59	33	27	---	74	76	1310	47	46	22	18
30	29	52	30	26	---	85	74	650	54	39	21	18
31	28	---	34	26	---	103	---	471	---	34	22	---
TOTAL	977	1363	1136	980	3788	2108	2690	8579	6691	1804	860	752
MEAN	31.5	45.4	36.6	31.6	135	68.0	89.7	277	223	58.2	27.7	25.1
MAX	53	145	46	40	758	106	132	2140	772	123	43	45
MIN	28	26	29	26	25	47	57	42	47	34	21	18
CFSM	.20	.29	.23	.20	.85	.43	.57	1.75	1.41	.37	.18	.16
IN.	.23	.32	.27	.23	.89	.50	.63	2.02	1.58	.42	.20	.18

CAL YR 1980 TOTAL 61467 MEAN 168 MAX 2220 MIN 26 CFSM 1.06 IN 14.47
WTR YR 1981 TOTAL 31728 MEAN 86.9 MAX 2140 MIN 18 CFSM .55 IN 7.47

02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: March 1978 to current year.

INSTRUMENTATION.--Temperature recorder since March 1978.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum recorded, 29.5°C July 21, 1980; minimum recorded, 0.0°C on many days during winter periods.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	18.0	14.5	16.0				---	---	---	2.0	1.5	2.0
2	18.0	16.0	17.0				---	---	---	2.0	.5	1.5
3	17.0	15.0	16.0				---	---	---	---	---	---
4	15.5	13.0	14.0				---	---	---	---	---	---
5	13.0	12.0	12.5				5.5	3.5	4.5	---	---	---
6	14.0	11.0	12.5				7.0	5.5	6.0	2.0	1.0	1.5
7	14.0	11.0	12.5				7.0	6.5	7.0	2.0	1.0	1.5
8	14.5	11.5	13.0				7.5	7.0	7.0	2.0	1.0	1.0
9	15.5	12.5	14.0				8.0	7.0	7.5	1.0	.5	.5
10	15.5	15.0	15.5				8.0	7.0	8.0	.0	.0	.0
11	15.5	15.5	15.5				7.0	6.5	7.0	---	---	---
12	15.5	14.5	15.0				6.5	6.0	6.0	---	---	---
13	14.5	14.0	14.0				6.0	5.5	5.5	.0	.0	.0
14	14.0	12.5	13.5				5.5	5.0	5.0	.0	.0	.0
15	13.5	12.5	13.0				5.0	4.5	4.5	.0	.0	.0
16	14.0	13.0	13.5				5.0	2.0	3.5	.5	.0	.5
17	14.0	13.0	13.5				3.5	2.5	3.0	.5	.5	.5
18	14.5	14.0	14.0				3.5	1.0	3.0	.5	.0	.5
19	15.0	14.5	14.5				4.0	3.5	3.5	.5	.0	.0
20	14.5	13.5	13.5				---	---	---	.0	.0	.0
21	13.5	13.0	13.0				---	---	---	.0	.0	.0
22	13.0	12.5	13.0				3.0	2.5	2.5	.0	.0	.0
23	12.5	12.0	12.5				2.5	2.0	2.5	.0	.0	.0
24	12.5	11.5	12.0				2.0	1.5	2.0	.0	.0	.0
25	12.5	12.0	12.0				---	---	---	.0	.0	.0
26	12.0	11.0	11.5				2.5	1.5	2.0	.5	.0	.0
27	---	---	---				2.0	1.5	2.0	---	---	---
28	---	---	---				1.5	1.5	1.5	---	---	---
29	---	---	---				1.5	1.0	1.0	---	---	---
30	---	---	---				1.5	1.5	1.5	---	---	---
31	---	---	---				2.0	.5	1.5	---	---	---
MONTH	18.0	11.0	13.5				8.0	.5	4.0	2.0	.0	.5

02011400 JACKSON RIVER NEAR BACOVA, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1										---	---	---
2										---	---	---
3										---	---	---
4										---	---	---
5										---	---	---
6										---	---	---
7										---	---	---
8										---	---	---
9										---	---	---
10										---	---	---
11										---	---	---
12										---	---	---
13										13.5	11.5	12.5
14										14.5	12.5	13.5
15										14.5	13.5	13.5
16										13.5	13.0	13.0
17										18.0	13.0	15.0
18										16.0	13.0	14.0
19										13.5	12.0	12.5
20										12.5	11.5	12.0
21										13.5	12.0	13.0
22										14.5	12.5	13.5
23										14.0	13.0	13.5
24										15.0	13.5	14.5
25										16.5	14.5	15.0
26										16.5	15.0	16.0
27										17.5	15.5	16.0
28										18.5	15.5	16.0
29										15.5	15.0	15.5
30										15.5	15.0	15.0
31										15.5	15.5	15.5
MONTH										18.5	11.5	14.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNF			JULY			AUGUST			SEPTEMBER	
1	15.5	15.0	15.5	20.5	20.0	20.5	23.5	20.0	22.0			
2	16.0	15.5	15.5	20.5	19.5	19.5	24.0	20.5	22.0			
3	21.0	16.0	16.5	19.5	19.5	19.5	24.5	22.0	23.0			
4	19.5	16.5	16.5	20.5	19.0	19.5	24.0	21.5	23.0			
5	16.5	16.5	16.5	20.5	19.5	20.0	24.5	21.5	23.0			
6	17.0	16.5	16.5	20.5	20.0	20.0	23.0	21.5	22.0			
7	17.5	16.5	17.0	20.0	18.0	19.0	23.0	21.0	22.0			
8	17.5	17.0	17.5	19.0	18.0	18.5	23.5	21.5	22.5			
9	18.0	17.5	17.5	20.0	18.5	19.0	23.5	21.0	22.0			
10	23.0	18.0	18.5	20.5	19.0	19.5	25.0	21.5	23.0			
11	20.0	19.0	19.5	21.0	19.0	20.0	25.0	22.0	23.0			
12	20.0	19.5	19.5	21.5	20.0	20.5	24.0	22.0	23.0			
13	20.5	20.0	20.0	20.5	20.0	20.0	23.0	20.5	22.0			
14	21.5	20.0	21.0	21.5	20.0	20.5	24.0	20.5	22.0			
15	22.0	20.5	21.5	22.0	19.5	20.5	25.0	21.5	23.0			
16	22.0	20.5	21.5	20.5	19.5	20.0	26.5	22.5	24.0			
17	21.5	21.0	21.5	22.0	20.0	21.0	23.5	21.5	22.5			
18	21.5	20.5	21.0	22.5	20.5	21.5	22.0	19.5	20.5			
19	21.5	20.5	21.0	22.5	20.5	21.5	19.5	18.0	18.5			
20	21.5	21.0	21.0	23.0	21.5	22.0	20.0	17.0	18.0			
21	22.0	20.5	21.0	22.5	21.0	21.5	19.0	17.0	18.0			
22	21.5	21.0	21.0	22.5	21.0	21.5	20.5	17.5	18.5			
23	21.5	20.5	21.0	22.0	20.0	21.0	20.0	17.0	18.5			
24	22.0	20.5	21.0	21.5	20.0	20.5	20.0	17.5	18.5			
25	22.0	21.0	21.5	21.5	20.0	20.5	21.0	17.5	19.0			
26	21.5	21.0	21.0	22.5	20.5	21.5	20.0	17.5	19.0			
27	21.5	20.0	20.5	22.5	21.5	22.0	21.0	17.5	19.0			
28	22.0	20.0	21.0	22.5	21.5	22.0	21.0	18.5	20.0			
29	22.0	20.0	21.0	22.5	21.5	21.5	21.0	18.0	19.5			
30	21.0	20.5	20.5	22.5	20.0	21.0	21.0	18.5	20.0			
31	---	---	---	23.5	19.5	21.5	23.5	19.5	21.0			
MONTH	23.0	15.0	19.5	23.5	18.0	20.5	26.5	17.0	21.0			
YEAR	26.5	.0	14.5									

02011460 BACK CREEK NEAR SUNRISE, VA

LOCATION.--Lat 38°14'43", long 79°46'08", Bath County, Hydrologic Unit 02080201, on right bank 900 ft (270 m) upstream from bridge on State Highway 600, 0.8 mi (1.3 km) upstream from Gap Run, and 4.8 mi (7.7 km) northeast of Sunrise.

DRAINAGE AREA.--56.7 mi^2 (146.9 km^2).

PERIOD OF RECORD.--June 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,200.02 ft (670.566 m) National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation).

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--7 years, 92.2 ft^3/s (2.611 m^3/s), 22.08 in/yr (561 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,400 ft^3/s (153 m^3/s) Jan. 26, 1978, gage height, 6.80 ft (2.073 m); minimum, 1.5 ft^3/s (0.042 m^3/s) Sept. 13, 14, 1980; minimum gage height, 0.07 ft (0.021 m) July 21, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,660 ft^3/s (47.0 m^3/s) at 1600 hours May 28, gage height, 4.65 ft (1.417 m), no other peak above base of 850 ft^3/s (24 m^3/s); minimum, 2.7 ft^3/s (0.076 m^3/s) Oct. 21-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	5.5	24	10	25	68	121	55	164	40	16	5.5
2	4.0	5.2	26	8.0	147	59	116	49	263	55	13	6.7
3	4.0	4.9	41	7.0	81	54	105	42	257	47	13	6.1
4	4.0	5.2	41	7.0	48	49	91	39	260	43	15	27
5	4.0	5.8	36	6.0	42	51	80	36	210	47	13	25
6	4.0	5.8	32	6.0	37	53	72	36	249	74	15	15
7	3.8	5.5	27	6.0	35	50	63	35	286	73	22	15
8	3.8	5.5	24	5.8	31	47	60	32	202	52	18	14
9	3.6	5.2	23	5.8	26	45	56	28	147	39	15	13
10	3.6	5.2	26	5.8	23	42	52	28	333	32	12	11
11	3.3	5.2	26	5.6	395	41	48	44	266	28	11	8.2
12	3.1	5.2	25	5.4	187	38	46	61	172	24	9.0	7.8
13	3.1	4.9	25	5.4	115	36	44	59	124	21	8.6	6.7
14	3.1	4.9	21	6.4	78	33	41	54	96	20	7.8	6.1
15	2.9	4.9	19	9.0	61	29	46	67	74	17	7.0	7.0
16	2.9	6.4	19	11	52	29	41	73	60	15	6.7	20
17	2.9	8.6	18	11	65	26	55	73	49	15	6.1	17
18	2.9	34	16	10	94	28	94	78	40	14	5.5	12
19	2.9	28	17	10	118	28	102	416	36	13	5.8	9.4
20	2.9	18	13	11	166	27	133	654	36	43	5.5	8.6
21	2.7	15	11	12	174	26	162	310	33	27	5.2	7.4
22	2.7	12	11	10	140	23	136	191	36	20	4.6	6.7
23	2.7	12	11	9.4	224	25	111	138	29	17	4.3	6.4
24	2.7	114	12	9.4	295	44	105	108	24	14	4.0	5.2
25	11	105	13	9.4	174	68	92	88	22	17	4.0	4.9
26	20	48	9.8	8.4	119	76	84	70	23	16	3.8	4.9
27	12	36	10	9.4	91	99	78	74	19	16	3.6	4.6
28	9.4	33	11	12	74	140	68	1120	17	19	3.6	4.3
29	7.8	30	11	11	---	116	63	596	16	31	3.6	3.8
30	7.0	26	11	10	---	116	60	280	17	26	3.3	3.8
31	6.1	---	12	10	---	129	---	204	---	19	4.0	---
TOTAL	153.2	604.9	621.8	263.2	3117	1695	2425	5138	3560	934	269.0	293.1
MEAN	4.94	20.2	20.1	8.49	111	54.7	80.8	166	119	30.1	8.68	9.77
MAX	20	114	41	12	395	140	162	1120	333	74	22	27
MIN	2.7	4.9	9.8	5.4	23	23	41	28	16	13	3.3	3.8
CFSM	.09	.36	.35	.15	1.96	.96	1.43	2.93	2.10	.53	.15	.17
IN.	.10	.40	.41	.17	2.04	1.11	1.59	3.37	2.33	.61	.18	.19

CAL YR 1980 TOTAL 29926.8 MEAN 81.8 MAX 1180 MIN 1.7 CFSM 1.44 IN 19.63
WTR YR 1981 TOTAL 19074.2 MEAN 52.3 MAX 1120 MIN 2.7 CFSM .92 IN 12.51

02011480 BACK CREEK ON ROUTE 600, NEAR MOUNTAIN GROVE, VA

LOCATION.--Lat 38°08'03", long 79°51'55", Bath County, Hydrologic Unit 02080201, on left bank 100 ft (30 m) downstream from bridge on State Highway 600, 2.8 mi (4.5 km) northeast of Mountain Grove, and 3.0 mi (4.8 km) upstream from Little Back Creek.

DRAINAGE AREA.--85.8 mi^2 (222.2 km^2).

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,818.05 ft (554.142 m) National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation). Prior to Aug. 2, 1979, at site 170 ft (52 m) upstream at same datum.

REMARKS.--Records good except those for January, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--8 years, 140 ft^3/s (3.965 m^3/s), 22.16 in/yr (563 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,420 ft^3/s (210 m^3/s) Dec. 26, 1973, gage height, 9.90 ft (3.018 m), from rating curve extended above 5,200 ft^3/s (150 m^3/s) on basis of runoff comparisons with nearby stations; minimum, 2.2 ft^3/s (0.062 m^3/s) Sept. 21, 22, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,300 ft^3/s (37 m^3/s) and maximum (*):

		Discharge		Gage height				Discharge		Gage height	
Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)	Date	Time	(ft^3/s)	(m^3/s)	(ft)	(m)
May 20	0530	1540	43.6	5.62	1.713	May 28	1730	*2870	81.3	7.04	2.146

Minimum discharge, 2.9 ft^3/s (0.082 m^3/s) Aug. 25, 27, 28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.3	11	37	12	15	98	153	76	445	58	26	10
2	7.2	8.6	37	11	172	84	146	70	469	87	21	9.0
3	8.3	7.5	54	11	116	78	133	59	503	76	19	8.3
4	8.3	7.9	55	11	75	71	120	53	534	72	19	47
5	7.5	11	53	10	56	74	112	49	390	70	17	55
6	7.2	7.9	45	10	50	74	101	49	394	108	25	33
7	7.5	9.6	40	9.5	46	68	90	49	437	102	36	25
8	6.4	8.6	35	9.0	43	64	80	43	301	79	35	24
9	6.0	8.6	33	8.9	37	61	76	40	211	61	26	18
10	6.8	8.3	37	8.9	43	57	72	37	484	50	20	15
11	6.8	6.4	36	8.6	515	57	64	62	413	46	14	11
12	6.0	6.8	35	8.4	258	53	63	85	255	41	14	9.0
13	6.0	8.6	33	8.3	135	49	62	81	174	33	13	9.6
14	6.0	10	31	9.8	104	45	57	76	136	31	14	9.0
15	5.7	9.0	27	14	77	41	59	92	109	26	13	8.3
16	6.4	13	26	16	72	38	53	97	91	25	13	24
17	6.8	18	25	16	84	35	68	95	78	24	7.9	28
18	7.2	59	21	15	114	42	109	98	68	20	5.3	20
19	6.8	48	22	15	144	38	122	754	62	20	5.1	19
20	6.0	32	16	19	236	36	151	1270	61	52	5.1	15
21	4.8	25	13	19	242	35	193	566	55	42	4.8	11
22	6.0	20	11	19	183	32	160	312	58	30	6.0	8.6
23	5.7	18	11	15	28	34	138	203	48	24	6.8	8.3
24	6.8	148	12	14	456	55	133	147	41	23	5.7	6.8
25	26	164	13	14	245	84	118	120	34	25	3.5	5.3
26	35	87	12	13	158	92	106	99	34	25	3.5	7.2
27	22	62	11	18	122	112	101	103	30	22	3.5	9.0
28	14	54	11	20	105	160	92	2060	26	30	3.5	7.5
29	13	48	12	19	---	136	85	1290	22	46	4.4	4.2
30	14	43	12	18	---	142	81	516	27	38	5.7	4.6
31	13	---	13	14	---	162	---	350	---	32	5.1	---
TOTAL	297.5	968.8	829	414.4	4192	2207	3098	9001	5990	1418	400.9	469.7
MEAN	9.60	32.3	26.7	13.4	150	71.2	103	290	200	45.7	12.9	15.7
MAX	35	164	55	20	515	162	193	2060	534	108	36	55
MIN	4.8	6.4	11	8.3	15	32	53	37	22	20	3.5	4.2
CFSM	.11	.38	.31	.16	1.75	.83	1.20	3.38	2.33	.53	.15	.18
IN.	.13	.42	.36	.18	1.82	.96	1.34	3.90	2.60	.61	.17	.20

CAL YR 1980 TOTAL 44636.3 MEAN 122 MAX 1950 MIN 3.1 CFSM 1.42 IN 19.34
WTR YR 1981 TOTAL 29286.3 MEAN 80.2 MAX 2060 MIN 3.5 CFSM .93 IN 12.69

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA

LOCATION.--Lat 38°04'10", long 79°53'50", Bath County, Hydrologic Unit 02080201, on left bank 0.3 mi (0.5 km) downstream from Cummings Run, 0.8 mi (1.3 km) downstream from bridge on State Highway 39, and 2.1 mi (3.4 km) south of Mountain Grove.

DRAINAGE AREA.--134 mi² (347 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,701.45 ft (518.602 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for January, which are fair.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--30 years, 183 ft³/s (5.183 m³/s), 18.55 in/yr (471 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft³/s (360 m³/s) Mar. 7, 1967, gage height, 10.77 ft (3.283 m), from rating curve extended above 4,000 ft³/s (110 m³/s) on basis of slope-area measurements at gage heights 7.39 ft (2.252 m), 9.05 ft (2.758 m), and 9.35 ft (2.850 m); minimum, 1.5 ft³/s (0.042 m³/s) Aug. 18, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,900 ft³/s (54 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 20	0600	2110	59.8	5.70	1.737	May 28	1730	*3940	112	7.15	2.179

Minimum discharge recorded, 5.6 ft³/s (0.16 m³/s) Jan. 3, but may have been less during period of no gage-height record Jan. 5-21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	14	51	17	15	138	243	111	375	55	24	11
2	10	12	50	14	168	121	228	101	719	97	20	11
3	11	12	64	11	150	111	204	88	823	86	18	11
4	12	11	68	11	105	103	180	79	887	86	18	43
5	11	14	65	12	90	111	162	75	623	79	16	65
6	11	12	57	11	80	115	145	73	538	125	22	36
7	11	12	51	11	60	107	127	75	544	132	35	23
8	12	12	44	11	50	99	115	65	390	103	36	23
9	10	12	42	10	43	94	111	59	286	79	26	19
10	10	12	46	10	35	86	105	57	570	64	20	17
11	11	11	46	10	623	83	94	88	532	55	15	15
12	10	10	43	9.4	450	79	90	145	334	47	16	12
13	10	12	42	9.4	220	75	90	140	240	38	16	12
14	10	12	39	11	165	68	85	127	186	35	15	12
15	10	13	36	15	110	62	83	147	140	28	15	12
16	11	15	32	19	96	59	76	155	115	26	14	20
17	10	20	30	19	107	52	99	150	95	24	13	27
18	12	68	26	18	142	61	165	145	83	21	10	18
19	11	59	26	18	204	57	186	1120	75	19	10	16
20	11	38	20	20	334	52	225	1740	71	48	10	15
21	10	28	14	20	370	51	272	847	67	47	9.4	13
22	10	22	16	15	286	47	246	463	65	31	9.4	11
23	11	20	18	15	395	48	213	302	57	23	11	11
24	11	162	20	15	663	67	210	222	47	23	10	10
25	25	228	20	16	380	107	195	171	39	24	8.3	8.9
26	34	121	16	17	252	127	168	140	38	25	7.8	8.9
27	22	86	14	16	189	147	152	138	32	24	6.7	11
28	16	75	16	19	152	219	138	2830	28	26	6.7	10
29	14	65	19	14	---	195	127	1780	24	47	7.2	7.8
30	15	59	18	14	---	201	121	747	24	39	8.9	7.2
31	14	---	16	15	---	252	---	486	---	30	8.9	---
TOTAL	397	1247	1065	442.8	5934	3194	4655	12866	8047	1586	463.3	516.8
MEAN	12.8	41.6	34.4	14.3	212	103	155	415	268	51.2	14.9	17.2
MAX	34	228	68	20	663	252	272	2830	887	132	36	65
MIN	10	10	14	9.4	15	47	76	57	24	19	6.7	7.2
CFSM	.10	.31	.26	.11	1.58	.77	1.16	3.10	2.00	.38	.11	.13
IN.	.11	.35	.30	.12	1.65	.89	1.29	3.57	2.23	.44	.13	.14

CAL YR 1980 TOTAL 62695.5 MEAN 171 MAX 2590 MIN 9.0 CFSM 1.28 IN 17.40
WTR YR 1981 TOTAL 40413.9 MEAN 111 MAX 2830 MIN 6.7 CFSM .83 IN 11.22

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1978 to current year.

INSTRUMENTATION.--Temperature recorder since June 1978.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum recorded, 31.0°C Aug. 5, 11, 1980; minimum recorded, 0.0°C on many days during winter periods in 1979 and 1981.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 29.5°C July 11, 12, 17, 19, 20, 26, Aug. 5, 16; minimum recorded, 0.0°C on many days during December to February.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.0	14.5	16.5	10.0	6.0	8.0	6.0	1.5	4.0	1.0	.5	.5
2	19.5	16.0	17.5	8.5	5.5	7.5	6.5	3.5	5.0	1.5	.0	.5
3	17.5	14.5	16.0	8.5	4.0	7.0	4.5	2.0	3.0	1.0	.0	.5
4	16.0	12.5	14.0	9.5	7.0	8.5	2.5	.0	1.5	1.5	.0	.5
5	13.0	11.5	12.5	8.5	6.5	8.0	4.5	2.5	3.5	1.5	.5	.5
6	14.5	10.5	12.5	7.0	4.0	6.0	7.0	4.5	5.5	.5	.0	.5
7	14.5	9.5	12.5	9.0	4.0	6.5	8.5	6.0	7.0	.5	.0	.0
8	15.5	11.0	13.5	11.0	7.0	9.0	8.0	5.5	7.0	.5	.0	.0
9	16.5	12.5	14.5	11.0	8.0	9.5	8.5	7.0	8.0	.5	.0	.0
10	18.5	14.5	16.5	9.5	6.5	8.5	8.5	6.0	7.5	.5	.0	.0
11	18.5	15.5	16.5	6.0	4.0	5.0	5.5	3.5	4.0	.5	.0	.0
12	15.0	11.0	13.0	4.5	1.5	3.5	5.5	3.0	4.0	.5	.0	.0
13	13.5	9.5	11.5	6.0	2.0	4.0	5.0	2.0	3.5	.5	.0	.0
14	12.5	8.5	10.5	6.5	3.0	5.0	3.5	1.5	2.5	.5	.0	.0
15	13.0	8.5	11.5	8.0	6.5	7.0	2.5	1.0	1.5	.5	.0	.5
16	14.0	9.5	12.0	9.0	7.0	8.0	3.5	2.0	3.0	.5	.0	.0
17	15.0	10.5	13.0	6.5	3.5	4.5	3.5	1.0	2.5	1.0	.0	.0
18	15.5	14.0	15.0	5.0	3.5	4.0	3.0	.0	1.5	1.0	.0	.5
19	17.5	14.0	15.5	5.5	3.0	4.0	4.5	1.5	3.5	1.0	.0	.5
20	14.0	11.5	12.5	4.0	.5	2.0	---	---	---	.5	.0	.0
21	14.0	10.0	11.5	3.5	.5	2.0	1.0	.0	.5	.5	.0	.0
22	12.5	9.0	11.0	4.0	.5	2.5	1.0	.0	.0	1.5	.0	.5
23	10.5	8.0	10.0	4.0	2.0	3.0	.5	.0	.5	1.0	.0	.5
24	10.5	7.5	9.5	6.0	4.0	5.0	.5	.0	.5	1.5	.0	.5
25	10.5	8.0	10.0	6.0	4.0	5.5	1.0	.0	.5	2.0	.0	.5
26	8.5	6.0	7.5	4.5	1.5	3.5	1.0	.0	.5	1.0	.0	.5
27	9.5	5.0	7.0	4.0	3.5	4.0	1.0	.0	.5	1.5	.0	.5
28	12.0	8.5	10.0	5.0	4.0	4.5	1.0	.0	.5	1.5	.0	.5
29	11.5	10.0	10.5	3.5	2.5	3.0	1.5	.5	1.0	2.0	.0	.5
30	11.5	8.5	10.0	5.0	1.5	3.5	1.0	.0	.5	1.5	.0	.5
31	10.0	7.0	8.5	---	---	---	1.0	.5	.5	1.5	.0	.5
MONTH	19.5	5.0	12.5	11.0	.5	5.5	8.5	.0	3.0	2.0	.0	.5

02011500 BACK CREEK NEAR MOUNTAIN GROVE, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.5	.0	.0	7.0	6.0	6.5	10.5	8.5	9.0	15.0	12.0	13.5
2	.5	.0	.0	6.5	4.0	5.0	13.5	7.0	10.0	16.0	9.5	12.5
3	.5	.0	.0	7.0	2.0	4.5	14.0	7.0	10.5	18.0	8.5	13.0
4	.5	.0	.0	4.0	1.5	3.0	14.5	9.0	12.0	21.0	10.5	15.5
5	.5	.0	.0	6.5	3.5	4.5	13.0	10.0	12.0	20.5	13.0	17.0
6	.5	.0	.0	7.0	3.0	4.5	11.5	8.0	9.5	17.0	14.5	16.0
7	1.0	.0	.0	6.5	2.0	4.0	13.0	5.0	9.0	20.0	12.0	15.5
8	.5	.0	.0	7.0	1.5	4.0	15.0	7.0	11.0	19.5	10.5	15.0
9	1.0	.0	.0	5.0	3.0	4.0	12.0	10.5	11.0	19.5	11.0	15.5
10	.0	.0	.0	4.5	1.5	3.0	14.5	8.0	11.5	17.0	15.5	16.0
11	1.5	.0	.5	6.5	2.0	4.0	16.0	10.5	13.0	19.5	15.0	16.5
12	1.0	.0	.0	8.5	2.0	5.0	15.5	12.5	14.0	16.0	12.0	14.0
13	2.0	.0	1.0	7.5	2.5	5.5	14.0	11.0	12.5	18.5	10.0	14.0
14	4.0	.0	1.5	7.0	2.0	5.0	16.0	10.5	12.5	21.0	13.0	17.0
15	5.0	.0	2.5	8.5	1.0	5.0	16.5	9.0	12.5	17.0	14.0	15.5
16	6.0	1.0	3.5	7.0	2.5	5.5	15.5	8.0	12.0	14.5	12.0	13.0
17	6.5	4.5	5.5	7.0	.5	4.0	12.5	11.5	12.0	19.0	11.0	14.5
18	8.5	5.0	6.5	5.0	2.0	3.5	17.0	11.0	14.0	14.5	12.5	13.0
19	6.5	5.5	6.0	5.0	.5	2.5	16.0	10.5	13.5	12.0	9.5	11.0
20	5.5	5.0	5.0	6.0	.5	3.0	14.5	11.0	13.0	12.5	9.5	11.0
21	6.5	4.5	5.5	7.0	2.0	4.0	14.0	7.5	10.5	15.5	9.5	12.5
22	7.0	4.5	6.0	4.0	1.5	3.0	12.5	8.5	10.5	17.0	10.5	13.5
23	7.0	5.0	6.5	9.0	2.0	5.0	14.0	11.0	12.5	17.5	12.0	14.5
24	5.5	4.5	5.0	10.0	2.5	6.5	12.5	9.0	11.0	19.5	12.5	16.0
25	7.5	3.5	5.5	10.5	4.0	7.0	13.0	8.0	10.0	21.0	14.0	17.0
26	7.5	3.0	5.0	9.0	3.5	6.5	15.5	7.5	11.5	20.0	15.0	17.5
27	7.5	2.0	4.5	8.5	5.5	7.0	18.0	11.5	14.5	17.5	15.5	16.5
28	8.5	3.5	6.0	11.0	4.0	7.5	20.0	12.5	16.0	15.5	12.5	13.0
29	---	---	---	12.0	5.0	8.5	17.0	13.0	15.0	15.5	12.0	13.5
30	---	---	---	11.0	9.0	9.5	17.0	13.0	14.5	17.0	12.5	14.5
31	---	---	---	14.0	7.0	10.5	---	---	---	16.5	14.0	15.0
MONTH	9.5	.0	2.5	14.0	.5	5.0	20.0	5.0	12.0	21.0	8.5	14.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	14.5	13.0	14.0	20.5	19.0	19.5	27.0	19.0	23.0	26.5	22.0	24.0
2	16.5	13.0	14.5	21.0	17.5	19.5	27.0	19.5	23.5	26.5	22.0	24.5
3	17.0	14.0	15.5	20.5	18.5	19.5	26.0	22.0	24.0	25.0	22.5	24.0
4	16.5	14.0	15.0	23.5	18.5	21.0	28.0	21.0	24.5	23.0	20.5	21.5
5	17.0	14.0	15.5	23.5	19.5	21.5	29.5	22.0	26.0	25.5	19.5	22.0
6	16.5	15.0	15.5	21.5	20.0	20.5	26.0	22.0	23.5	25.5	21.0	23.0
7	20.0	14.5	16.5	25.5	19.0	21.0	26.0	21.0	23.5	25.5	20.0	22.5
8	20.0	14.0	17.0	26.5	20.0	23.0	27.0	21.5	24.0	22.5	19.5	21.5
9	20.0	16.0	17.5	27.0	21.0	24.5	27.0	21.0	24.0	21.0	17.0	19.0
10	18.5	16.0	17.5	27.0	22.0	24.5	29.0	21.0	24.5	22.5	16.0	19.0
11	20.0	14.5	17.0	29.5	21.0	25.0	29.0	21.0	25.0	23.0	15.0	19.5
12	20.0	15.5	17.5	29.5	22.5	25.5	27.5	22.0	24.5	24.5	17.5	21.0
13	20.5	16.5	18.5	25.5	22.0	24.0	26.0	19.0	22.5	24.0	17.5	21.0
14	25.5	17.5	21.5	29.0	22.0	25.0	26.5	19.0	23.0	23.5	17.5	21.0
15	26.0	19.0	22.0	29.0	20.0	24.0	27.0	20.0	23.5	21.0	19.5	20.0
16	27.0	19.0	23.0	26.0	21.5	23.5	29.5	22.0	25.5	23.5	18.0	20.5
17	26.0	21.0	23.0	29.5	21.0	25.0	26.5	20.0	23.0	20.5	16.5	18.5
18	25.5	18.0	21.5	29.0	22.0	25.0	26.0	17.0	21.0	18.0	14.5	16.0
19	27.0	20.0	23.5	29.5	21.5	25.5	20.0	17.5	19.0	17.0	13.5	15.0
20	25.0	21.5	23.0	29.5	24.5	26.5	25.0	15.5	19.5	18.5	12.0	15.5
21	27.5	20.0	23.5	29.0	23.0	25.5	23.0	16.0	19.5	20.0	14.0	17.0
22	25.5	21.0	23.0	29.0	21.5	25.0	26.5	17.5	21.0	20.0	15.5	17.5
23	27.0	19.0	22.5	27.0	20.0	23.5	25.5	16.5	20.5	19.5	14.0	16.5
24	27.5	19.0	23.0	23.0	21.0	22.0	23.5	17.5	20.5	17.5	11.0	14.0
25	27.0	20.5	24.0	27.0	20.5	23.0	26.5	18.0	22.0	17.0	11.0	14.5
26	24.5	19.5	22.0	29.5	22.5	26.0	26.5	17.5	21.5	19.5	13.0	16.0
27	26.0	16.5	21.0	29.0	24.0	26.0	26.5	18.0	22.0	19.5	14.5	17.0
28	26.5	17.0	21.5	27.0	23.0	25.0	26.5	20.0	23.0	19.5	14.5	16.5
29	26.5	17.5	22.0	26.5	22.0	24.0	26.5	19.0	22.0	17.5	11.5	14.5
30	23.0	20.0	21.0	27.0	18.5	22.5	26.0	20.0	22.5	18.0	13.5	15.5
31	---	---	---	26.5	18.0	22.5	27.0	21.5	24.0	---	---	---
MONTH	27.5	13.0	20.0	29.5	17.5	23.5	29.5	15.5	23.0	26.5	11.0	19.0
YEAR	29.5	.0	12.0									

02011795 LAKE MOOMAW NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°57'04", long 79°59'21", Alleghany County, Hydrologic Unit 02080201, in control tower at Gathright Dam on Jackson River, 0.9 mi (1.4 km) upstream from Cedar Creek, 7.6 mi (12.2 km) southwest of Hot Springs, and 19 mi (31 km) upstream from Covington.

DRAINAGE AREA.--344 mi² (891 km²).

PERIOD OF RECORD.--December 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Corps of Engineers benchmark).

REMARKS.--Lake is formed by rolled rockfill dam with an impervious compacted earth (clay) core. Spillway with crest at elevation 1,667.5 ft (508.25 m) is in a divide about 2.5 mi (4.0 km) south of the dam, ungated, and 2,450 ft (747 m) long with a base width of 100 ft (30 m). Except for flood flows, all discharge will be through a diversion tunnel with the invert of the entrance being in an intake tower 260 ft (79.2 m) high. Elevation of invert is 1,430.5 ft (436.02 m). Portals in the tower at nine levels permit oxygenated water from the surface and cold water from the bottom of the lake to be mixed for water-quality control. Sluice gates in the tower control flood flow releases. Storage began Dec. 10, 1979. Total capacity at top of dam, elevation 1,684.5 ft (513.44 m) is 502,600 acre-ft (620 hm³) of which 81,100 acre-ft (100 hm³) is above spillway crest. Capacity at maximum conservation pool, elevation, 1,582.0 ft (482.19 m) is 123,700 acre-ft (153 hm³); capacity at minimum conservation pool, elevation 1,554.0 ft (473.66 m) is 63,000 acre-ft (77.7 hm³). Lake is used for flood control, low-water augmentation for water-quality control, and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 96,314 acre-ft (119 hm³) May 30, 1981, elevation, 1,570.5 ft (478.69 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 96,314 acre-ft (119 hm³) May 30, elevation, 1,570.5 ft (478.69 m); minimum (lake is still in the initial filling stage), 38,868 acre-ft (47.9 hm³) Oct. 6, elevation, 1,538.3 ft (468.87 m).

MONTHEND ELEVATION AND CONTENTS AT 1500, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1538.5	39220	
Oct. 31	1538.6	39400	+180
Nov. 30	1540.5	42040	+2640
Dec. 31	1542.1	44180	+2140
CAL YR 1980			+38390
Jan. 31	1542.0	44040	-140
Feb. 28	1553.1	61400	+17360
Mar. 31	1557.8	70000	+8600
Apr. 30	1562.2	78640	+8640
May 31	1569.5	94090	+15450
June 30	1564.9	84200	-9890
July 31	1565.0	84410	+210
Aug. 31	1564.6	83580	-830
Sept. 30	1564.9	84200	+620
WTR YR 1981			+44980

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA

LOCATION.--Lat 37°56'54", long 79°56'58", Alleghany County, Hydrologic Unit 02080201, on right bank 0.4 mi (0.6 km) upstream from Cedar Creek, 0.5 mi (0.8 km) downstream from Gathright Dam and Moomaw Lake, and 7.3 mi (11.7 km) southwest of Hot Springs.

DRAINAGE AREA.--345 mi^2 (894 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,400.00 ft (426.720 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Dec. 20, 1973, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated since December 1979 by Moomaw Lake (station 02011795).

AVERAGE DISCHARGE.--8 years, 452 ft^3/s (12.80 m^3/s), 17.79 in/yr (452 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,000 ft^3/s (821 m^3/s) Dec. 26, 1973, result of cofferdam failure during construction of Gathright Dam, gage height, 18.77 ft (5.721 m), from rating curve extended above 4,400 ft^3/s (120 m^3/s) on basis of slope-area measurement of peak flow; minimum, 3.0 ft^3/s (0.085 m^3/s) July 12, 1979, result of gate closure at Gathright Dam, gage height, 7.78 ft (2.371 m); minimum daily, 47 ft^3/s (1.33 m^3/s) Sept. 2, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 17.20 ft (5.243 m), from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,980 ft^3/s (84.4 m^3/s) June 3, gage height, 12.20 ft (3.719 m); minimum, 5.6 ft^3/s (0.16 m^3/s) Apr. 6, gage height, 7.83 ft (2.387 m); minimum daily, 47 ft^3/s (1.33 m^3/s) Sept. 2.

REVISIONS.--The minimum daily discharge for water year 1980 has been revised to 55 ft^3/s (1.56 m^3/s) May 14-20. Revised daily discharges, in cubic feet per second, for June 1980, are given below. These figures supersede those published in the report for 1980.

June 1	899	June 9	242	June 17	66	June 25	66
2	1210	10	155	18	65	26	61
3	804	11	66	19	65	27	58
4	398	12	63	20	65	28	58
5	311	13	63	21	65	29	58
6	250	14	63	22	65	30	58
7	257	15	63	23	65		
8	260	16	66	24	66		

MONTH	TOTAL	MEAN	MAX	MIN	MEAN‡	CFSM‡	IN‡
June 1980	6051	202	1210	58	196	.57	.63
Wtr Yr 1980	193866	530	3860	55	584	1.69	23.05

‡ Adjusted for change in contents in Moomaw Lake.

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	104	77	91	69	68	75	75	261	2660	113	83	53
2	90	77	71	69	68	75	75	260	2830	113	83	47
3	82	77	70	69	68	69	75	214	2390	171	83	48
4	78	77	70	69	68	75	75	187	1810	156	83	53
5	78	77	70	85	68	76	75	187	887	198	83	59
6	73	77	70	88	68	76	64	151	996	229	83	59
7	70	77	70	88	68	76	73	190	996	227	83	59
8	70	77	70	88	68	76	73	190	996	226	83	60
9	66	77	70	88	68	75	73	125	956	226	83	60
10	63	77	70	88	68	77	73	90	928	226	83	61
11	63	77	70	88	648	75	73	90	741	226	83	57
12	63	75	69	84	707	74	73	141	1430	226	83	59
13	63	75	69	83	68	76	65	212	1670	178	83	60
14	63	75	69	79	68	77	74	263	1160	113	83	61
15	63	76	70	75	68	77	74	284	450	75	83	61
16	63	76	67	71	68	77	72	284	131	92	83	61
17	64	76	68	69	71	77	75	284	95	92	72	61
18	65	97	68	70	73	77	75	325	95	92	64	61
19	65	128	68	70	73	73	75	778	139	92	65	61
20	66	128	68	65	73	73	177	2040	170	84	60	61
21	61	128	69	69	73	73	362	2550	170	83	57	61
22	66	125	69	70	73	73	424	1770	170	83	56	61
23	66	125	68	69	73	73	338	920	170	83	56	61
24	66	127	69	68	75	73	452	692	147	83	57	61
25	68	127	69	68	75	73	452	585	119	83	57	55
26	70	127	69	68	75	73	452	494	112	83	57	53
27	75	127	68	69	75	73	384	372	112	83	57	52
28	78	126	68	70	75	73	269	340	112	83	57	53
29	78	126	68	68	---	73	225	1340	112	83	57	53
30	78	125	68	67	---	73	245	2390	112	83	57	54
31	78	---	68	68	---	70	---	2380	---	83	57	---
TOTAL	2196	2916	2161	2309	3191	2306	5167	20389	22866	4068	2214	1726
MEAN	70.8	97.2	69.7	74.5	114	74.4	172	658	762	131	71.4	57.5
MAX	104	128	91	88	707	77	452	2550	2830	229	83	61
MIN	61	75	67	65	68	69	64	90	95	75	56	47
(*)	+3	+44	+35	-2	+313	+140	+145	+251	-166	+3	-13	+10
MEAN‡	73.8	141	105	72.5	427	214	317	909	596	134	58.4	67.5
CFSM‡	.21	.41	.30	.21	1.24	.62	.92	2.63	1.73	.39	.17	.20
IN‡	.25	.46	.35	.24	1.29	.72	1.03	3.04	1.93	.45	.20	.22

CAL YR 1980 TOTAL 143270 MEAN 391 MAX 3860 MIN 55 MEAN‡ 444 CFSM‡ 1.29 IN‡ 17.52
WTR YR 1981 TOTAL 71509 MEAN 196 MAX 2830 MIN 47 MEAN‡ 258 CFSM‡ .75 IN‡ 10.15

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1979 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1978 to current year.
pH: October 1978 to current year.
WATER TEMPERATURES: October 1978 to current year.
DISSOLVED OXYGEN: October 1978 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1978.

REMARKS.--Interruptions in the record were due to malfunctions of the instruments. The intake tower at Gathright Dam permits selective withdrawal of water from one or more reservoir depths.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum recorded, 225 micromhos Apr. 13, 1981; minimum recorded, 78 micromhos May 14, 1979.
pH: Maximum, 8.4 units Oct. 2, 3, Nov. 25, 1978, May 12, 1981; minimum, 7.0 units on several days in 1979 and 1980.
WATER TEMPERATURES: Maximum, 28.0°C Aug. 1, 2, 1979; minimum, 0.0°C Feb. 16, 17, 18, 19, 1979.
DISSOLVED OXYGEN: Maximum recorded, 19.5 mg/L Jan. 16, 1979; minimum recorded, 6.1 mg/L June 10, 15, 1979.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 225 micromhos Apr. 13; minimum recorded, 102 micromhos June 9.
pH: Maximum, 8.4 units May 12; minimum, 7.2 units May 30, 31, June 1-6, 9, 10.
WATER TEMPERATURES: Maximum, 24.5°C July 9, 14, 21; minimum, 2.5°C Jan. 12.
DISSOLVED OXYGEN: Maximum recorded, 13.9 mg/L Jan. 20; minimum recorded, 6.3 mg/L July 14.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C). WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	196	192	194	---	---	---	210	206	208	202	200	201
2	196	193	194	---	---	---	209	205	207	201	199	200
3	197	195	196	---	---	---	210	207	209	200	198	199
4	198	196	197	---	---	---	208	206	207	200	199	199
5	197	196	197	---	---	---	208	204	205	199	197	198
6	197	196	196	---	---	---	209	206	207	199	198	198
7	198	196	197	213	211	212	209	207	208	200	197	198
8	198	195	196	212	210	211	209	206	208	198	197	198
9	198	194	196	211	209	210	207	204	206	199	197	198
10	198	196	197	212	210	211	208	205	206	199	197	198
11	200	195	198	212	210	211	208	205	207	199	197	198
12	200	198	199	213	210	212	207	202	205	200	197	198
13	198	196	197	213	211	212	206	202	203	199	197	198
14	197	194	195	211	209	210	207	203	205	199	198	198
15	198	196	197	209	207	208	208	205	206	199	198	199
16	197	195	197	210	206	208	204	196	200	200	198	199
17	197	196	197	213	208	210	203	197	199	201	199	200
18	198	195	197	219	207	210	204	201	202	201	200	200
19	199	196	198	208	207	208	204	201	202	201	199	200
20	199	198	198	208	207	207	205	202	203	206	199	200
21	---	---	---	209	207	208	204	202	203	201	199	200
22	---	---	---	208	207	207	204	199	200	201	200	200
23	---	---	---	208	206	207	201	198	200	202	200	201
24	---	---	---	207	205	206	202	199	200	201	200	201
25	---	---	---	208	205	206	203	199	201	203	201	202
26	---	---	---	206	205	206	201	199	199	203	202	202
27	---	---	---	207	205	206	201	200	200	204	202	203
28	---	---	---	209	206	208	200	197	198	205	203	204
29	---	---	---	208	206	207	199	197	198	206	204	205
30	---	---	---	207	206	207	199	197	198	206	203	204
31	---	---	---	---	---	---	200	199	199	206	203	204
MONTH	200	192	197	219	205	209	210	196	203	206	197	200

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	207	204	205	185	185	185	181	180	181	165	163	164
2	209	204	207	186	184	185	182	178	180	165	164	164
3	207	203	205	201	181	183	181	179	180	166	164	165
4	206	203	204	181	179	180	181	178	180	166	165	165
5	205	202	204	183	181	182	181	179	180	166	164	165
6	204	202	203	182	178	180	206	174	181	185	163	166
7	204	201	203	180	179	179	177	174	176	165	164	164
8	207	203	204	180	178	179	177	174	175	166	164	164
9	205	203	204	182	179	180	177	174	175	168	164	166
10	205	202	204	181	179	180	176	173	174	168	167	167
11	---	---	---	182	179	180	175	172	174	168	163	165
12	203	196	199	180	178	179	176	173	175	165	160	162
13	204	202	203	179	177	178	225	174	177	162	159	161
14	203	202	203	179	177	178	175	172	174	161	159	160
15	203	202	202	178	177	178	175	173	174	162	159	160
16	203	202	203	179	177	178	177	172	174	161	158	159
17	203	201	202	179	177	178	---	---	---	161	158	159
18	203	202	202	179	177	178	---	---	---	160	158	159
19	---	---	---	185	178	179	175	172	174	172	158	163
20	203	200	202	180	178	179	---	---	---	170	167	169
21	200	198	199	180	178	179	169	167	168	168	166	167
22	199	196	198	179	178	179	167	165	166	170	166	168
23	197	195	196	180	178	179	185	165	168	170	157	165
24	197	191	195	180	178	179	166	163	165	158	156	158
25	190	183	187	182	179	180	165	162	164	158	155	157
26	186	184	185	181	178	180	166	163	165	157	154	156
27	186	185	185	180	179	180	166	164	165	158	154	156
28	186	184	185	180	178	179	167	164	166	159	155	157
29	---	---	---	180	179	180	167	163	165	172	155	163
30	---	---	---	181	179	180	166	163	164	163	152	157
31	---	---	---	187	179	181	---	---	---	152	143	147
MONTH	209	183	200	201	177	180	225	162	173	185	143	162

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	142	127	135	141	138	140	152	150	151	164	160	162
2	126	119	123	---	---	---	152	151	152	166	162	164
3	157	114	120	140	136	138	153	151	152	165	161	163
4	116	112	114	140	136	138	153	151	152	164	160	162
5	140	110	116	140	136	137	155	151	153	162	160	161
6	110	106	108	138	135	136	160	152	155	169	160	162
7	105	104	105	138	136	137	160	153	156	166	162	163
8	105	103	104	138	136	137	157	153	154	164	160	162
9	110	102	104	139	136	137	154	152	153	165	160	162
10	108	103	105	138	136	137	154	152	154	164	160	162
11	156	105	114	138	137	138	154	152	153	169	160	162
12	111	107	109	139	136	138	155	153	154	165	162	163
13	111	109	110	141	137	140	155	153	154	164	161	163
14	111	109	110	146	140	143	156	153	154	164	162	163
15	133	110	123	168	142	147	156	154	155	163	159	162
16	139	127	132	145	144	144	156	153	155	165	162	163
17	130	126	128	145	144	144	159	154	156	164	161	163
18	146	128	137	146	144	145	159	157	158	165	151	163
19	145	137	141	146	144	145	162	158	159	167	162	164
20	138	135	137	149	144	146	163	160	161	164	160	162
21	136	133	135	148	145	147	161	158	159	164	161	162
22	135	132	133	149	146	148	161	158	160	165	162	164
23	135	132	133	149	146	148	161	158	160	167	164	165
24	140	131	136	149	147	149	162	158	160	166	163	165
25	140	138	139	150	148	149	160	158	159	167	165	166
26	140	137	139	150	148	149	161	158	159	168	166	167
27	139	137	138	151	148	149	161	159	160	169	166	167
28	139	136	138	151	149	150	161	159	160	168	165	167
29	140	137	138	151	149	150	160	159	160	169	165	166
30	140	137	139	151	148	150	162	159	161	168	165	167
31	---	---	---	151	149	150	162	159	161	---	---	---
MONTH	157	102	125	168	135	144	163	150	156	169	159	164
YEAR	225	102	175									

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.7	7.6	7.6	---	---	---	7.9	7.8	7.8	7.9	7.8	7.8
2	7.7	7.6	7.7	---	---	---	7.9	7.8	7.8	7.9	7.8	7.8
3	7.7	7.6	7.7	---	---	---	7.9	7.8	7.9	8.0	7.8	7.8
4	7.7	7.5	7.6	---	---	---	7.9	7.8	7.9	8.0	7.8	7.9
5	7.7	7.5	7.6	---	---	---	8.0	7.8	7.9	7.9	7.8	7.9
6	7.7	7.5	7.7	---	---	---	8.0	7.9	7.9	7.9	7.8	7.8
7	7.7	7.7	7.7	7.8	7.7	7.8	8.0	7.9	7.9	7.9	7.8	7.8
8	7.7	7.5	7.7	7.9	7.8	7.8	7.9	7.8	7.9	7.9	7.8	7.8
9	7.8	7.7	7.7	7.9	7.8	7.8	7.9	7.8	7.8	7.9	7.8	7.8
10	7.8	7.7	7.7	7.9	7.8	7.8	7.9	7.8	7.8	7.9	7.8	7.8
11	7.8	7.7	7.8	7.8	7.7	7.8	7.9	7.8	7.8	7.9	7.8	7.8
12	7.8	7.7	7.7	7.9	7.7	7.8	7.9	7.8	7.8	8.0	7.8	7.9
13	7.8	7.7	7.7	7.9	7.7	7.8	7.8	7.7	7.8	8.0	7.8	7.8
14	7.8	7.7	7.8	7.9	7.7	7.8	7.8	7.7	7.8	8.0	7.8	7.9
15	7.8	7.7	7.8	7.9	7.8	7.8	7.9	7.7	7.8	8.0	7.8	7.9
16	7.8	7.6	7.7	7.9	7.8	7.8	7.9	7.8	7.8	8.0	7.8	7.9
17	7.8	7.7	7.8	7.9	7.8	7.8	7.9	7.8	7.9	7.9	7.7	7.8
18	7.8	7.7	7.7	7.9	7.7	7.8	8.0	7.8	7.9	7.9	7.8	7.9
19	7.8	7.7	7.8	7.8	7.7	7.7	8.0	7.8	7.9	8.0	7.8	7.9
20	7.8	7.7	7.8	7.8	7.7	7.8	8.0	7.8	7.9	8.3	7.8	7.9
21	---	---	---	7.8	7.7	7.8	8.0	7.9	7.9	7.9	7.8	7.8
22	---	---	---	7.9	7.8	7.8	8.0	7.8	7.9	7.9	7.7	7.8
23	---	---	---	7.8	7.8	7.8	8.0	7.8	7.9	7.9	7.7	7.8
24	---	---	---	7.8	7.7	7.8	7.9	7.8	7.9	7.9	7.7	7.8
25	---	---	---	7.8	7.7	7.8	7.9	7.8	7.9	7.8	7.7	7.7
26	---	---	---	7.8	7.7	7.8	7.9	7.8	7.8	7.8	7.7	7.7
27	---	---	---	7.8	7.7	7.8	7.9	7.8	7.8	7.9	7.7	7.8
28	---	---	---	7.8	7.7	7.8	7.9	7.8	7.8	7.9	7.7	7.8
29	---	---	---	7.8	7.7	7.8	7.9	7.8	7.8	7.9	7.8	7.8
30	---	---	---	7.9	7.8	7.8	7.9	7.8	7.8	8.0	7.8	7.9
31	---	---	---	---	---	---	7.9	7.8	7.8	8.0	7.9	7.9
MONTH	7.8	7.5	7.7	7.9	7.7	7.8	8.0	7.7	7.9	8.3	7.7	7.8

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	7.9	7.8	7.9	8.0	7.8	7.9	7.9	7.7	7.8	8.0	7.7	7.8
2	8.0	7.8	7.9	8.0	7.8	7.9	7.9	7.7	7.8	8.0	7.8	7.9
3	7.9	7.8	7.8	8.1	7.8	7.9	7.9	7.7	7.8	8.0	7.8	7.9
4	7.9	7.8	7.8	8.0	7.8	7.9	7.9	7.7	7.8	8.0	7.8	7.9
5	7.9	7.8	7.8	8.0	7.8	7.8	7.9	7.7	7.7	8.0	7.7	7.9
6	8.0	7.8	7.9	8.0	7.8	7.9	8.1	7.7	7.8	8.0	7.7	7.8
7	8.0	7.8	7.9	8.1	7.8	7.9	8.0	7.8	7.9	8.1	7.8	7.9
8	7.9	7.7	7.8	8.1	7.8	7.9	8.0	7.8	7.9	8.0	7.8	7.9
9	7.9	7.7	7.8	8.1	7.8	7.9	7.9	7.7	7.8	8.1	7.8	7.9
10	7.9	7.8	7.8	8.0	7.8	7.9	8.0	7.7	7.8	8.0	7.7	7.9
11	---	---	---	8.1	7.8	7.9	8.0	7.7	7.8	8.3	7.8	8.0
12	7.9	7.7	7.8	8.1	7.8	7.9	8.0	7.7	7.8	8.4	8.0	8.2
13	7.9	7.8	7.9	8.1	7.8	7.9	7.9	7.7	7.8	8.2	8.0	8.1
14	7.9	7.8	7.8	8.1	7.8	7.9	7.9	7.8	7.8	8.2	8.0	8.1
15	7.9	7.8	7.8	8.1	7.8	7.9	8.0	7.8	7.8	8.2	7.9	8.1
16	7.9	7.8	7.8	8.1	7.8	7.9	8.0	7.7	7.8	8.2	8.0	8.1
17	7.9	7.8	7.8	8.1	7.8	7.9	---	---	---	8.1	7.9	8.0
18	7.9	7.8	7.8	8.0	7.8	7.8	---	---	---	8.0	7.9	7.9
19	---	---	---	8.1	7.8	7.9	8.0	7.8	7.9	8.0	7.5	7.8
20	7.8	7.7	7.8	8.1	7.8	7.9	---	---	---	7.5	7.4	7.5
21	7.9	7.8	7.8	8.1	7.8	7.9	7.8	7.7	7.8	7.4	7.3	7.4
22	7.9	7.8	7.8	8.1	7.8	7.9	7.8	7.7	7.7	7.4	7.3	7.3
23	7.9	7.8	7.8	8.1	7.8	7.9	7.9	7.7	7.7	7.6	7.3	7.4
24	7.9	7.8	7.8	8.1	7.8	7.9	7.8	7.7	7.7	7.6	7.6	7.6
25	7.9	7.8	7.8	8.1	7.8	7.9	7.8	7.7	7.7	7.6	7.5	7.6
26	8.0	7.8	7.9	8.1	7.7	7.9	7.8	7.7	7.7	7.6	7.5	7.6
27	8.0	7.8	7.9	8.0	7.7	7.8	7.8	7.7	7.7	7.7	7.5	7.6
28	8.0	7.8	7.9	8.0	7.7	7.9	7.8	7.7	7.7	7.6	7.6	7.6
29	---	---	---	8.0	7.7	7.8	7.9	7.6	7.7	7.6	7.3	7.5
30	---	---	---	7.9	7.7	7.8	7.8	7.7	7.7	7.3	7.2	7.3
31	---	---	---	8.0	7.7	7.8	---	---	---	7.3	7.2	7.2
MONTH	8.0	7.7	7.8	8.1	7.7	7.9	8.1	7.6	7.8	8.4	7.2	7.8

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

PH (STANDARD UNITS), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	7.2	7.2	7.2	7.8	7.6	7.7	8.0	7.8	7.9	8.1	7.8	7.9
2	7.2	7.2	7.2	---	---	---	8.0	7.8	7.9	8.1	7.8	7.9
3	7.4	7.2	7.2	7.7	7.5	7.6	8.0	7.8	7.9	8.1	7.9	8.0
4	7.3	7.2	7.3	7.7	7.5	7.6	8.0	7.9	8.0	8.0	7.9	7.9
5	7.7	7.2	7.3	7.6	7.5	7.6	8.1	7.9	8.0	8.1	7.8	7.9
6	7.3	7.2	7.3	7.8	7.5	7.6	8.0	7.9	7.9	8.1	7.8	7.9
7	7.3	7.3	7.3	7.9	7.7	7.8	8.1	7.9	8.0	8.1	7.8	7.9
8	7.3	7.3	7.3	7.9	7.7	7.8	8.0	7.9	7.9	8.1	7.8	7.9
9	7.3	7.2	7.3	7.9	7.7	7.8	8.0	7.9	7.9	8.1	7.9	8.0
10	7.3	7.2	7.3	7.9	7.7	7.8	8.1	7.9	7.9	8.1	7.9	8.0
11	7.7	7.3	7.4	7.9	7.7	7.8	8.0	7.9	7.9	8.0	7.9	7.9
12	7.3	7.3	7.3	8.0	7.8	7.9	8.0	7.9	7.9	8.1	7.9	8.0
13	7.3	7.3	7.3	8.0	7.7	7.8	8.1	7.9	8.0	8.1	7.9	8.0
14	7.3	7.3	7.3	8.1	7.8	7.9	8.1	7.9	8.0	8.1	7.8	8.0
15	7.7	7.3	7.5	8.0	7.8	7.9	8.1	7.9	8.0	8.1	7.8	7.9
16	7.9	7.5	7.6	8.1	7.8	7.9	8.0	7.9	8.0	8.1	7.9	8.0
17	7.6	7.4	7.5	8.1	7.8	7.9	8.1	7.9	8.0	8.2	7.9	8.0
18	7.9	7.4	7.6	8.1	7.8	7.9	8.1	7.9	8.0	8.1	7.9	8.0
19	7.8	7.6	7.7	8.1	7.8	7.9	8.0	7.7	7.8	8.2	7.9	8.0
20	7.8	7.6	7.7	8.2	7.8	7.9	8.0	7.7	7.9	8.1	7.9	8.0
21	7.9	7.5	7.7	8.2	7.8	7.9	8.0	7.9	7.9	8.1	7.9	8.0
22	7.8	7.5	7.6	8.1	7.8	8.0	8.0	7.9	7.9	8.1	7.9	8.0
23	7.9	7.5	7.7	8.2	7.8	8.0	8.0	7.9	7.9	8.2	7.9	8.0
24	7.9	7.5	7.7	8.0	7.8	7.9	8.0	7.9	7.9	8.1	7.9	8.0
25	7.9	7.5	7.7	8.1	7.8	7.9	8.0	7.8	7.9	8.2	7.9	8.0
26	7.8	7.5	7.7	8.0	7.8	7.9	8.1	7.8	7.9	8.1	7.9	8.0
27	7.9	7.6	7.7	8.1	7.8	7.9	8.1	7.8	7.9	8.1	7.9	8.0
28	7.8	7.5	7.7	8.0	7.8	7.9	8.1	7.8	7.9	8.1	7.9	8.0
29	7.9	7.5	7.7	8.1	7.8	7.9	8.1	7.8	8.0	8.2	7.9	8.0
30	7.9	7.6	7.7	8.1	7.9	8.0	8.1	7.8	7.9	8.2	7.9	8.0
31	---	---	---	8.1	7.8	8.0	8.1	7.8	7.9	---	---	---
MONTH	7.9	7.2	7.5	8.2	7.5	7.9	8.1	7.7	7.9	8.2	7.8	8.0
YEAR	8.4	7.2	7.8									

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

TEMPERATURE. WATER (DEG. C). WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	21.5	20.5	21.0	---	---	---	8.5	8.5	8.5	5.5	5.0	5.0
2	21.0	20.5	20.5	---	---	---	9.0	8.0	8.5	5.0	4.5	4.5
3	20.5	20.0	20.5	---	---	---	8.0	8.0	8.0	4.5	4.5	4.5
4	20.0	19.5	20.0	---	---	---	8.0	7.5	8.0	4.5	3.5	4.0
5	19.5	19.0	19.5	---	---	---	8.0	8.0	8.0	3.5	3.0	3.5
6	19.5	18.5	19.0	---	---	---	8.0	8.0	8.0	4.0	3.5	3.5
7	19.0	18.0	18.5	13.5	13.0	13.0	8.5	8.0	8.0	4.0	3.5	3.5
8	19.0	18.0	18.5	13.5	13.0	13.5	8.0	8.0	8.0	4.0	3.5	3.5
9	19.0	18.0	18.5	13.5	13.0	13.0	8.0	8.0	8.0	4.0	3.5	3.5
10	19.0	18.0	18.5	13.0	12.5	12.5	8.0	7.5	7.5	3.5	3.0	3.5
11	19.0	18.0	18.5	12.5	12.0	12.0	7.5	7.5	7.5	3.5	3.0	3.0
12	18.0	17.5	18.0	12.0	11.5	12.0	7.5	7.0	7.5	3.0	2.5	3.0
13	18.0	17.0	17.5	12.0	11.5	12.0	7.5	7.0	7.0	3.5	3.0	3.5
14	17.5	16.5	17.0	12.0	11.5	12.0	7.0	7.0	7.0	4.0	3.5	3.5
15	17.5	16.5	17.0	12.0	12.0	12.0	7.5	7.0	7.0	4.0	3.5	3.5
16	17.5	16.5	17.0	12.0	11.5	11.5	7.0	7.0	7.0	4.0	3.5	3.5
17	17.5	16.5	17.0	11.5	11.0	11.5	7.0	6.5	6.5	3.5	3.0	3.5
18	17.5	17.0	17.0	11.5	11.0	11.0	7.0	6.5	7.0	3.5	3.5	3.5
19	17.5	17.0	17.0	11.0	10.5	11.0	7.0	6.5	7.0	4.0	3.5	3.5
20	17.0	16.5	16.5	10.5	10.0	10.5	6.5	6.0	6.0	4.5	3.5	4.0
21	---	---	---	10.5	10.0	10.0	6.0	5.5	5.5	4.5	4.0	4.0
22	---	---	---	10.0	10.0	10.0	5.5	5.5	5.5	4.0	4.0	4.0
23	---	---	---	10.0	10.0	10.0	6.0	5.5	6.0	4.5	4.0	4.0
24	---	---	---	10.0	10.0	10.0	6.0	5.5	6.0	4.0	4.0	4.0
25	---	---	---	10.0	9.5	9.5	5.5	5.0	5.0	4.5	4.0	4.0
26	---	---	---	9.5	9.0	9.5	5.0	4.5	5.0	4.5	4.0	4.5
27	---	---	---	9.5	9.0	9.0	5.0	4.5	5.0	4.5	4.0	4.5
28	---	---	---	9.0	9.0	9.0	5.5	5.0	5.0	4.5	4.0	4.0
29	---	---	---	9.0	8.5	8.5	5.5	5.0	5.0	4.0	4.0	4.0
30	---	---	---	9.0	8.5	8.5	5.5	5.0	5.0	4.0	3.5	4.0
31	---	---	---	---	---	---	5.5	5.0	5.0	4.0	3.5	4.0
MONTH	21.5	16.5	18.5	13.5	8.5	11.0	9.0	4.5	6.5	5.5	2.5	4.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	4.5	3.5	4.0	5.5	5.0	5.5	6.5	6.0	6.5	11.5	10.0	10.5
2	4.5	3.5	4.0	5.5	5.0	5.5	7.5	6.0	6.5	11.5	10.5	11.0
3	4.0	3.5	3.5	7.5	5.0	5.5	7.5	6.0	6.5	11.5	10.5	11.0
4	4.0	3.5	3.5	5.5	5.0	5.0	7.5	6.5	7.0	11.5	10.5	11.0
5	3.5	3.5	3.5	5.5	5.0	5.5	7.0	6.5	6.5	11.5	10.5	11.0
6	4.0	3.5	3.5	5.5	5.0	5.5	10.0	6.0	7.5	12.0	10.5	11.0
7	4.5	3.5	4.0	6.0	5.0	5.0	9.0	7.0	8.0	12.0	10.5	11.5
8	4.5	3.5	4.0	6.0	5.0	5.0	9.5	7.0	8.0	12.0	11.0	11.0
9	4.0	3.5	3.5	5.5	5.0	5.0	8.5	7.5	8.0	13.0	11.0	11.5
10	4.0	3.5	4.0	5.5	5.0	5.0	9.5	7.5	8.5	12.0	11.0	11.5
11	---	---	---	6.0	5.0	5.5	9.5	7.5	8.5	14.5	11.5	13.0
12	3.5	3.0	3.5	6.0	5.0	5.5	9.5	7.5	8.5	14.5	13.5	14.0
13	4.0	3.0	3.5	6.0	5.0	5.5	10.0	8.0	8.5	14.0	13.0	13.5
14	4.0	3.5	4.0	6.0	5.0	5.5	9.5	8.0	8.5	14.0	13.0	13.5
15	4.5	3.5	4.0	6.5	5.0	5.5	9.0	8.0	8.5	14.5	13.0	13.5
16	4.5	3.5	4.0	6.0	5.5	5.5	9.5	7.5	8.5	14.0	13.5	14.0
17	4.5	4.0	4.5	6.5	5.5	6.0	---	---	---	14.5	13.5	14.0
18	5.0	4.0	4.5	6.0	5.5	5.5	---	---	---	13.5	13.5	13.5
19	---	---	---	6.5	5.5	5.5	10.0	7.5	9.0	13.5	6.5	11.0
20	4.5	4.5	4.5	6.0	5.5	5.5	---	---	---	7.5	7.0	7.0
21	4.5	4.0	4.5	6.0	5.5	5.5	10.0	9.0	9.5	8.5	7.5	8.0
22	5.0	4.0	4.5	6.0	5.5	5.5	9.5	9.0	9.5	8.5	8.0	8.0
23	4.5	4.5	4.5	6.5	5.5	6.0	11.0	8.5	9.5	13.5	8.0	10.0
24	4.5	4.5	4.5	7.0	5.5	6.0	10.5	9.0	9.5	13.5	13.0	13.5
25	5.0	4.5	4.5	7.0	5.5	6.0	10.5	9.5	9.5	14.0	13.0	13.5
26	5.5	4.5	4.5	7.0	5.5	6.0	9.5	9.0	9.5	14.0	13.0	13.5
27	5.5	4.5	5.0	6.5	6.0	6.0	10.5	9.0	10.0	15.0	13.0	14.0
28	5.5	4.5	5.0	7.5	5.5	6.0	11.0	9.5	10.5	13.5	13.5	13.5
29	---	---	---	7.0	5.5	6.5	11.5	10.0	10.5	13.5	8.0	10.5
30	---	---	---	6.5	6.0	6.5	10.5	10.0	10.5	10.0	9.5	10.0
31	---	---	---	8.0	6.0	6.5	---	---	---	11.0	10.5	10.5
MONTH	5.5	3.0	4.0	8.0	5.0	5.5	11.5	6.0	8.5	15.0	6.5	11.5

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.5	11.0	11.0	20.0	19.0	19.5	23.5	22.0	22.5	22.5	21.0	21.5
2	12.0	11.5	12.0	---	---	---	23.5	22.0	22.5	22.5	21.0	21.5
3	13.0	11.0	12.0	19.5	18.5	19.0	23.0	22.0	22.5	22.5	21.5	21.5
4	12.5	12.0	12.0	20.0	18.5	19.0	23.5	22.0	22.5	21.5	21.0	21.5
5	16.0	11.5	12.5	19.0	19.0	19.0	24.0	22.0	23.0	22.5	21.0	21.5
6	12.5	12.0	12.5	22.0	19.0	20.5	23.0	22.5	22.5	22.5	21.0	21.5
7	13.0	12.5	12.5	23.0	21.5	22.5	23.0	22.0	22.5	22.5	21.0	21.5
8	13.0	12.5	13.0	23.0	22.5	23.0	23.0	22.0	22.5	22.0	21.0	21.5
9	13.5	13.0	13.0	24.5	22.5	23.5	23.5	22.0	22.5	22.0	20.5	21.0
10	13.5	13.0	13.5	23.5	22.5	23.0	23.5	22.0	22.5	22.0	20.5	21.0
11	17.0	13.5	14.0	24.0	23.0	23.5	23.5	22.0	22.5	21.5	20.0	21.0
12	14.0	13.5	13.5	24.0	23.0	23.5	23.5	22.5	22.5	22.0	20.5	21.0
13	14.0	14.0	14.0	24.0	23.0	23.5	23.0	22.0	22.5	22.5	20.5	21.0
14	14.0	14.0	14.0	24.5	23.0	23.5	23.0	22.0	22.5	22.0	20.5	21.0
15	18.0	14.0	16.0	23.5	22.0	22.5	23.0	22.0	22.5	21.5	21.0	21.0
16	18.0	13.5	16.0	23.0	22.5	22.5	23.0	22.0	22.5	22.0	20.5	21.0
17	14.5	13.5	14.0	23.5	22.5	23.0	23.5	22.0	22.5	21.5	20.0	20.5
18	18.0	13.0	15.5	23.5	22.5	23.0	23.5	21.5	22.5	21.0	20.0	20.5
19	18.0	17.0	17.5	23.5	22.5	23.0	22.0	18.5	20.5	20.5	19.5	20.0
20	18.0	17.5	17.5	23.5	22.0	23.0	22.5	18.0	20.0	20.5	19.0	19.5
21	18.5	17.5	17.5	24.5	22.0	23.0	22.0	20.5	21.0	21.0	19.0	20.0
22	18.0	17.5	17.5	23.5	22.5	23.0	22.5	21.0	21.5	20.5	19.5	19.5
23	18.5	17.5	17.5	24.0	22.5	23.0	22.5	20.5	21.5	20.5	19.0	19.5
24	18.5	17.0	17.5	23.0	22.5	22.5	22.0	20.5	21.5	20.0	18.5	19.0
25	18.5	17.5	18.0	23.5	22.5	22.5	22.5	20.5	21.5	20.0	18.5	19.0
26	18.5	17.5	18.0	23.5	22.0	22.5	22.0	20.5	21.5	20.0	18.0	19.0
27	18.5	17.0	17.5	24.0	22.0	23.0	22.5	20.5	21.5	20.0	18.5	19.0
28	18.5	17.0	17.5	24.0	22.5	23.0	22.5	21.0	21.5	19.5	18.5	19.0
29	20.5	17.0	18.5	23.5	22.5	23.0	22.0	20.5	21.0	19.5	18.0	18.5
30	20.0	19.0	19.5	23.5	22.0	22.5	22.5	20.5	21.5	19.5	18.0	18.5
31	---	---	---	23.5	22.0	22.5	22.5	21.0	21.5	---	---	---
MONTH	20.5	11.0	15.0	24.5	18.5	22.5	24.0	18.0	22.0	22.5	18.0	20.5
YEAR	24.5	2.5	12.5									

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	7.8	7.5	7.6	---	---	---	11.6	11.1	11.3	12.4	11.9	12.1
2	7.9	7.5	7.7	---	---	---	11.6	11.1	11.3	12.7	12.0	12.3
3	8.0	7.6	7.7	---	---	---	11.6	11.2	11.4	12.8	12.1	12.3
4	8.0	7.6	7.8	---	---	---	11.7	11.1	11.3	13.0	12.2	12.6
5	8.2	7.8	8.0	---	---	---	11.8	11.1	11.3	13.1	12.6	12.8
6	8.4	7.9	8.1	---	---	---	11.7	11.1	11.3	13.2	12.4	12.8
7	8.4	8.0	8.2	10.4	9.8	11.4	11.8	11.2	11.3	13.1	12.4	12.7
8	8.4	7.9	8.1	10.4	9.8	11.5	11.7	11.1	11.3	13.2	12.6	12.9
9	8.4	7.8	8.1	10.5	9.8	10.1	11.5	11.0	11.2	13.4	12.7	12.9
10	8.4	7.7	8.0	10.4	9.9	10.1	11.7	11.1	11.3	13.4	12.7	13.0
11	8.3	7.8	8.0	10.7	10.1	10.3	11.8	11.2	11.4	13.5	12.9	13.1
12	8.4	8.0	8.2	10.8	10.3	10.4	11.9	11.2	11.4	13.6	12.9	13.1
13	8.7	8.1	8.3	10.8	10.3	10.5	11.8	11.2	11.4	13.5	12.8	13.0
14	8.8	8.3	8.5	10.9	10.2	10.5	11.6	11.2	11.3	13.5	12.7	13.0
15	8.9	8.3	8.6	10.8	10.2	10.4	11.9	11.1	11.4	13.5	12.7	13.0
16	8.8	8.4	8.6	11.0	10.3	10.6	11.5	10.9	11.1	13.6	12.8	13.1
17	9.0	8.3	8.6	10.8	10.3	10.5	11.5	10.9	11.2	13.6	12.8	13.1
18	8.9	8.3	8.5	10.9	10.3	10.6	11.7	11.0	11.2	13.4	12.8	13.1
19	8.9	8.3	8.5	11.1	10.6	10.8	11.8	11.0	11.3	13.6	12.9	13.2
20	9.0	8.4	8.6	11.1	10.8	10.9	11.9	11.3	11.6	13.9	12.9	13.3
21	---	---	---	11.2	10.8	10.9	12.0	11.6	11.7	13.7	13.0	13.2
22	---	---	---	11.3	10.8	11.0	12.3	11.6	11.8	13.5	12.8	13.0
23	---	---	---	11.4	10.9	11.1	12.3	11.5	11.8	13.5	12.6	12.8
24	---	---	---	11.2	10.8	10.9	11.9	11.5	11.6	13.2	12.4	12.7
25	---	---	---	11.4	10.9	11.1	12.3	11.6	11.9	13.0	12.3	12.5
26	---	---	---	11.4	11.1	11.2	12.5	11.8	12.1	12.8	12.0	12.3
27	---	---	---	11.3	11.0	11.1	12.4	11.9	12.1	12.5	11.6	11.9
28	---	---	---	11.3	10.9	11.1	12.6	11.9	12.2	12.5	11.6	11.9
29	---	---	---	11.5	11.0	11.2	12.6	11.8	12.1	12.4	11.7	12.0
30	---	---	---	11.6	11.2	11.3	12.5	11.9	12.1	12.7	11.8	12.1
31	---	---	---	---	---	---	12.5	11.9	12.1	12.5	11.9	12.1
MONTH	9.0	7.5	8.2	11.6	9.8	10.8	12.6	10.9	11.5	13.9	11.6	12.7

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	12.3	11.6	11.9	12.1	11.3	11.6	12.3	11.5	11.8	11.0	10.4	10.7
2	12.4	11.4	11.8	12.1	11.3	11.5	12.4	11.4	11.9	11.1	10.4	10.7
3	12.6	11.7	12.0	12.4	11.3	11.6	12.4	11.5	11.9	11.1	10.4	10.8
4	12.5	11.8	12.1	12.2	11.2	11.6	12.4	11.4	11.9	11.1	10.4	10.7
5	12.6	11.8	12.1	11.8	11.1	11.3	12.2	11.4	11.7	11.0	10.3	10.6
6	12.6	11.8	12.1	12.2	11.2	11.6	12.4	10.7	11.6	11.1	10.3	10.5
7	12.7	11.6	12.1	12.3	11.3	11.7	11.9	11.0	11.5	11.0	10.2	10.5
8	12.4	11.6	11.8	12.4	11.4	11.8	11.9	11.0	11.5	10.9	10.1	10.5
9	12.4	11.7	12.0	12.3	11.4	11.8	11.6	11.0	11.3	10.8	9.9	10.4
10	12.4	11.7	11.9	12.4	11.3	11.8	11.9	11.1	11.5	10.5	9.6	10.0
11	---	---	---	12.3	11.3	11.7	11.7	11.0	11.4	10.4	8.9	9.7
12	13.6	12.1	12.8	12.4	11.2	11.6	11.6	11.1	11.3	9.9	9.0	9.5
13	12.6	12.1	12.3	12.2	11.0	11.5	11.5	9.8	11.1	10.2	9.4	9.8
14	12.5	12.0	12.2	12.2	11.1	11.5	11.8	11.0	11.3	10.0	9.6	9.8
15	12.4	12.0	12.2	12.2	10.9	11.4	12.0	11.1	11.5	9.9	9.4	9.7
16	12.4	11.9	12.1	12.2	10.9	11.5	12.0	11.1	11.5	10.0	9.4	9.7
17	12.4	11.9	12.1	12.4	11.2	11.7	---	---	---	10.1	9.6	9.8
18	12.4	11.8	12.0	12.1	11.2	11.5	---	---	---	9.9	9.6	9.7
19	---	---	---	12.3	11.2	11.7	11.9	10.9	11.4	12.1	9.6	10.7
20	12.0	11.5	11.7	12.5	11.3	11.8	---	---	---	12.3	11.9	12.1
21	12.1	11.6	11.8	12.6	11.4	11.9	11.7	11.1	11.4	12.2	11.9	12.0
22	12.2	11.6	11.9	12.7	11.5	12.0	11.7	11.3	11.5	12.0	11.2	11.6
23	12.1	11.5	11.7	12.7	11.4	11.9	11.8	11.1	11.4	11.3	9.7	10.7
24	12.1	11.5	11.7	12.7	11.5	12.1	11.4	11.0	11.2	9.9	9.7	9.8
25	12.2	11.5	11.8	12.7	11.7	12.1	11.5	11.0	11.3	9.8	9.5	9.7
26	12.3	11.6	11.8	12.8	11.6	12.1	11.6	11.3	11.5	9.8	9.5	9.7
27	12.3	11.5	11.8	12.7	11.6	12.1	11.5	11.1	11.3	9.7	9.3	9.5
28	12.2	11.3	11.7	12.8	11.8	12.2	11.5	10.7	11.0	9.6	9.3	9.4
29	---	---	---	12.7	11.6	12.1	11.1	10.5	10.8	11.7	9.4	10.7
30	---	---	---	12.3	11.5	11.8	11.2	10.6	10.8	11.6	11.2	11.4
31	---	---	---	12.5	11.5	11.9	---	---	---	11.3	11.1	11.2
MONTH	13.6	11.3	12.0	12.8	10.9	11.8	12.4	9.8	11.4	12.3	8.9	10.4

02011800 JACKSON RIVER BELOW GATHRIGHT DAM, NEAR HOT SPRINGS, VA--Continued

OXYGEN, DISSOLVED (DO), MG/L, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	11.3	11.1	11.2	9.6	8.7	9.1	7.6	7.2	7.4	9.2	8.2	8.6
2	11.2	11.0	11.1	---	---	---	7.5	7.2	7.4	9.0	8.1	8.5
3	11.2	10.5	11.0	9.6	8.9	9.2	7.6	7.3	7.5	9.1	8.2	8.5
4	11.2	10.5	10.8	9.6	8.8	9.2	7.7	7.4	7.5	8.9	8.2	8.5
5	11.2	10.0	10.6	9.4	8.8	9.1	7.9	7.4	7.6	9.3	8.2	8.6
6	10.7	10.5	10.6	9.0	8.2	8.6	---	---	---	9.2	8.2	8.6
7	10.7	10.4	10.5	8.4	7.6	8.0	---	---	---	9.2	8.1	8.5
8	10.6	10.3	10.5	8.0	7.4	7.7	---	---	---	8.8	8.1	8.4
9	10.5	10.3	10.4	7.8	7.2	7.5	---	---	---	9.1	8.2	8.5
10	10.4	10.3	10.4	7.6	7.1	7.4	---	---	---	9.2	8.2	8.6
11	10.5	9.4	10.3	7.4	7.0	7.2	---	---	---	9.1	8.2	8.5
12	10.7	10.4	10.6	7.2	6.9	7.1	---	---	---	9.1	8.2	8.5
13	10.7	10.6	10.6	7.2	6.6	6.9	---	---	---	9.1	8.1	8.5
14	10.6	10.3	10.5	7.1	6.3	6.8	8.1	7.7	7.9	9.1	8.1	8.5
15	10.4	9.1	9.8	7.1	6.4	6.7	8.3	8.0	8.1	9.0	8.1	8.4
16	10.3	9.1	9.7	6.9	6.5	6.7	8.4	8.1	8.3	9.0	8.2	8.5
17	10.6	9.7	10.1	7.0	6.5	6.7	8.8	8.3	8.4	9.1	8.3	8.6
18	10.5	8.9	9.8	6.9	6.5	6.7	9.0	8.4	8.6	9.2	8.3	8.7
19	10.0	8.9	9.4	7.0	6.6	6.7	9.5	8.4	8.9	9.2	8.3	8.7
20	9.9	9.1	9.4	6.9	6.4	6.7	9.4	8.4	8.9	9.3	8.4	8.7
21	10.1	9.1	9.5	6.9	6.4	6.7	9.3	8.5	8.9	9.3	8.4	8.7
22	10.1	9.1	9.5	7.0	6.5	6.7	9.2	8.5	8.8	9.2	8.4	8.7
23	10.3	9.1	9.6	7.1	6.6	6.8	9.4	8.4	8.8	9.3	8.4	8.8
24	10.5	9.0	9.7	7.0	6.7	6.8	9.3	8.3	8.7	9.4	8.6	8.9
25	10.4	9.0	9.6	7.1	6.7	6.9	9.4	8.5	8.8	9.4	8.6	8.9
26	10.1	8.9	9.4	7.3	6.7	7.0	9.4	8.5	8.8	9.4	8.4	8.8
27	10.3	9.0	9.6	7.3	6.8	7.0	9.3	8.4	8.8	9.4	8.3	8.8
28	10.2	9.1	9.6	7.2	6.9	7.0	9.3	8.5	8.8	9.4	8.4	8.8
29	10.0	8.8	9.4	7.4	6.9	7.1	9.3	8.5	8.8	9.5	8.6	8.9
30	9.7	8.7	9.1	7.4	7.0	7.2	9.3	8.3	8.7	9.5	8.5	8.9
31	---	---	---	7.6	7.2	7.3	9.3	8.3	8.7	---	---	---
MONTH	11.3	8.7	10.1	9.6	6.3	7.4	9.5	7.2	8.4	9.5	8.1	8.6
YEAR	13.9	6.3	10.4									

02012500 JACKSON RIVER AT FALLING SPRING, VA

LOCATION.--Lat 37°52'36", long 79°58'39", Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft (6 m) upstream from Smith Bridge, 0.8 mi (1.3 km) south of town of Falling Spring, 1.6 mi (2.6 km) downstream from Falling Spring Creek, and 5.5 mi (8.8 km) north of Covington.

DRAINAGE AREA.--411 mi^2 (1,064 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1925 to current year. Prior to October 1934, published as "at Barber."

REVISED RECORDS.--WSP 952: 1927, 1928(M), 1929-30, 1932-40. WSP 1303: 1926(M), 1930-34(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,333.49 ft (406.448 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 26, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated since December 1979 by Moomaw Lake (station 02011795), 7.6 mi (12.2 km) upstream.

AVERAGE DISCHARGE.--56 years, 489 ft^3/s (13.85 m^3/s), 16.16 in/yr (410 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,700 ft^3/s (700 m^3/s) Mar. 17, 1936, gage height, 14.74 ft (4.493 m), from rating curve extended above 17,000 ft^3/s (480 m^3/s) on basis of records for other stations in James River basin; minimum, 36 ft^3/s (1.02 m^3/s) Oct. 12, 1946, July 15, 1981; minimum daily, 52 ft^3/s (1.47 m^3/s) Sept. 8, 1966; minimum gage height, 2.65 ft (0.808 m) Oct. 12, 1946.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of about 20 ft (6.1 m), discharge, about 50,000 ft^3/s (1,400 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,110 ft^3/s (88.1 m^3/s) June 2, gage height, 7.92 ft (2.414 m); minimum, 36 ft^3/s (1.02 m^3/s) July 15, gage height, 2.91 ft (0.887 m); minimum daily, 61 ft^3/s (1.73 m^3/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	134	93	132	88	81	124	124	308	2610	155	114	74
2	115	93	99	86	108	120	128	306	3010	153	114	65
3	107	92	97	85	103	110	126	267	2460	194	114	65
4	102	95	95	85	95	116	124	227	2050	216	114	79
5	101	94	94	95	92	144	125	226	1080	227	113	83
6	97	94	92	100	88	153	109	187	1160	281	122	81
7	92	94	92	105	88	138	116	228	1160	281	121	80
8	91	94	92	103	88	130	114	226	1130	271	116	77
9	87	94	93	103	86	123	115	173	1080	269	113	77
10	82	93	94	102	86	122	113	119	1040	268	112	76
11	81	92	92	98	684	117	111	137	827	265	111	72
12	80	92	92	94	945	114	111	181	1430	265	111	73
13	80	92	91	93	129	115	106	259	1690	229	110	74
14	80	92	90	96	115	113	112	304	1320	161	110	74
15	80	93	90	91	108	112	113	342	634	105	109	75
16	80	96	87	85	105	110	111	337	206	126	111	88
17	80	100	88	83	110	111	130	331	142	126	101	78
18	81	154	88	83	116	111	157	360	139	124	87	77
19	81	169	87	83	122	107	143	861	169	125	86	76
20	81	157	86	79	151	103	222	2000	218	119	83	76
21	75	152	84	84	153	102	442	2460	218	115	75	76
22	80	149	84	83	138	102	515	1880	218	113	75	76
23	80	149	85	84	157	102	423	1050	214	114	75	74
24	81	214	88	83	189	102	552	796	197	115	75	74
25	97	201	85	82	157	102	545	690	163	117	76	70
26	90	171	84	82	142	102	539	579	149	116	75	64
27	90	163	87	83	132	103	469	464	147	116	75	64
28	95	161	86	83	127	102	338	1710	146	115	75	63
29	94	159	87	82	---	103	275	1850	147	116	75	61
30	94	157	88	82	---	112	289	2530	151	114	75	62
31	94	---	87	82	---	114	---	2450	---	114	77	---
TOTAL	2782	3749	2816	2747	4695	3539	6897	23838	25305	5225	3000	2204
MEAN	89.7	125	90.8	88.6	168	114	230	769	844	169	96.8	73.5
MAX	134	214	132	105	945	153	552	2530	3010	281	122	88
MIN	75	92	84	79	81	102	106	119	139	105	75	61
(*)	+3	+44	+35	-2	+313	+140	+145	+251	-166	+3	-13	+10
MEAN‡	92.7	169	126	86.6	481	254	375	1020	678	172	83.8	83.5
CFSM‡	.23	.41	.31	.21	1.17	.62	.91	2.48	1.65	.42	.20	.20
IN‡	.26	.46	.35	.24	1.22	.71	1.02	2.86	1.84	.48	.24	.23

CAL YR 1980 TOTAL 168965 MEAN 462 MAX 3950 MIN 75 MEAN‡ 515 CFSM‡ 1.25 IN‡ 17.06
WTR YR 1981 TOTAL 86797 MEAN 238 MAX 3010 MIN 61 MEAN‡ 300 CFSM‡ .73 IN‡ 9.91

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: December 1968 to current year.
WATER TEMPERATURES: December 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 500 micromhos Oct. 2, 1970; minimum daily, 61 micromhos Dec. 21, 26, 1977.
WATER TEMPERATURES: Maximum daily, 29.5°C Aug. 2, 5, 1975; minimum daily, 0.0°C on several days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 302 micromhos Sept. 12; minimum daily, 126 micromhos June 12.
WATER TEMPERATURES: Maximum daily, 26.5°C July 26; minimum observed, 2.0°C Dec. 26, Jan. 5, 9, 10, 12, Feb. 3.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
NOV												
05...	1330	94	277	8.6	11.0	1	120	22	37	6.2	2.3	2.3
DEC												
16...	1400	90	275	8.3	6.0	<5	130	42	42	6.7	2.3	2.2
JAN												
27...	1415	82	275	8.3	5.0	<5	130	40	41	7.0	2.6	2.1
MAR												
17...	0825	112	245	8.3	4.0	<5	110	34	36	5.8	2.2	2.0
MAY												
12...	1325	144	244	8.3	14.0	<5	110	38	35	6.1	2.8	2.0
JUL												
07...	1350	281	182	8.3	24.0	2	84	26	27	4.0	1.6	1.6
AUG												
18...	0915	88	230	8.1	20.0	<1	110	32	34	5.7	1.0	1.9

< Actual value is known to be less than the value shown.

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)
NOV											
05...	96	38	2.2	.1	5.0	167	151	.010	.12	.010	<10
DEC											
16...	90	39	2.6	.2	4.6	172	154	<.010	.22	<.010	<10
JAN											
27...	91	38	2.6	.2	4.6	161	153	<.010	.18	.020	<10
MAR											
17...	80	35	2.5	.2	4.0	147	137	<.010	.17	<.010	<10
MAY											
12...	75	34	3.0	.2	3.2	142	131	<.010	.12	.010	<10
JUL											
07...	58	20	2.0	.1	3.3	116	94	<.010	.16	.020	<10
AUG											
18...	76	35	2.7	.2	5.2	153	131	<.010	.09	<.010	10

< Actual value is known to be less than the value shown.

02012500 JACKSON RIVER AT FALLING SPRING, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	251	250	240	---	281	275	260	182	160	216	213	241
2	263	245	280	---	272	273	260	187	161	213	216	239
3	265	270	250	---	268	285	265	191	179	204	213	242
4	272	260	250	---	255	263	256	190	165	192	216	233
5	275	250	---	---	255	280	256	187	184	[illegible]	214	268
6	271	240	---	---	254	262	260	187	141	184	217	252
7	278	280	---	---	250	260	256	186	135	179	233	254
8	275	280	---	---	255	263	260	189	134	184	228	248
9	274	225	---	---	255	260	257	200	152	179	218	254
10	281	250	---	---	255	275	234	221	136	178	221	244
11	284	250	---	---	200	262	237	214	173	177	220	242
12	284	243	---	---	218	262	223	205	126	176	218	302
13	286	260	---	---	250	259	232	200	136	181	220	243
14	284	255	---	---	255	260	228	182	184	204	219	248
15	287	220	---	---	255	259	237	182	194	213	217	243
16	275	280	275	---	246	255	232	182	213	213	215	244
17	286	255	---	---	246	260	232	182	215	223	222	245
18	285	295	---	---	253	257	218	182	228	218	237	243
19	281	235	---	---	250	259	223	168	231	215	223	250
20	288	233	---	238	246	259	235	156	212	213	237	247
21	287	220	---	250	237	263	182	177	194	218	238	250
22	289	240	---	250	237	258	182	177	192	216	236	245
23	286	245	---	249	237	262	182	194	193	217	238	250
24	288	222	---	260	228	264	183	179	191	217	238	240
25	280	225	---	255	232	250	182	199	204	223	239	245
26	287	240	---	235	234	255	177	179	209	218	238	257
27	284	260	---	256	237	255	182	202	211	227	238	260
28	279	260	---	235	239	249	184	165	211	223	236	262
29	277	245	---	218	---	260	187	218	204	224	238	258
30	275	260	---	250	---	270	183	194	209	223	237	260
31	243	---	---	250	---	282	---	165	---	221	236	---
MEAN	278	250	259	246	246	263	223	188	183	206	227	250

WTR YR 1981 MEAN 232 MAX 302 MIN 126

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	13.5	9.0	5.0	4.5	7.5	13.0	13.0	12.0	20.0	24.5	25.0
2	20.5	12.5	9.0	4.5	5.0	6.5	13.0	14.0	14.0	20.0	24.0	24.5
3	19.0	13.5	8.0	3.0	2.0	7.0	13.0	16.0	14.0	19.5	24.0	24.5
4	15.5	13.5	7.5	3.0	2.5	5.5	14.0	15.5	15.0	21.0	25.0	22.0
5	15.5	8.5	---	2.0	3.0	7.0	12.0	15.5	15.5	21.0	25.5	23.0
6	17.0	9.0	---	3.0	4.0	7.5	11.0	16.0	14.0	21.0	22.5	23.5
7	17.0	12.5	10.5	3.5	5.0	6.0	12.0	16.5	16.0	24.5	24.0	23.0
8	17.5	14.5	9.0	2.5	4.5	7.0	12.5	16.0	15.5	24.0	24.5	23.0
9	19.0	14.0	10.0	2.0	4.0	7.0	12.5	15.5	15.5	25.0	25.0	24.0
10	20.0	13.0	9.0	2.0	3.0	6.0	14.0	14.5	15.5	25.0	24.0	24.0
11	19.0	10.0	6.5	---	3.5	7.0	13.5	15.0	18.0	24.5	24.0	22.5
12	14.5	9.0	7.0	2.0	3.5	8.0	14.0	15.0	15.5	24.5	24.0	22.5
13	15.0	9.5	7.0	---	5.0	8.0	11.0	18.5	16.0	24.0	23.0	24.0
14	14.0	9.5	6.0	5.0	6.0	8.0	13.5	18.0	17.0	26.0	23.0	23.5
15	15.0	11.5	5.5	3.0	6.5	9.0	14.0	15.5	19.0	25.0	24.5	23.5
16	15.5	11.5	6.5	3.0	7.5	7.0	14.0	14.5	22.0	23.0	24.0	24.5
17	15.5	8.5	6.0	2.5	8.0	7.0	11.5	18.0	20.0	26.0	24.0	18.0
18	17.0	9.0	5.0	3.5	9.5	6.5	14.0	14.0	19.0	24.5	24.0	16.5
19	18.0	9.5	7.0	3.5	8.0	6.0	15.0	14.0	21.0	26.0	21.5	20.0
20	16.0	8.5	3.5	3.5	7.5	5.0	13.0	14.0	19.5	24.0	22.0	18.0
21	15.5	8.0	3.0	4.0	8.0	7.0	12.0	15.0	21.0	25.0	21.5	18.0
22	15.0	8.0	2.5	4.5	8.0	8.0	12.5	11.0	21.0	25.0	23.5	19.0
23	14.0	8.0	4.0	4.5	8.5	8.5	11.0	14.0	22.0	24.0	24.0	19.0
24	14.0	9.5	6.0	6.0	6.0	9.0	10.5	16.0	22.0	22.5	22.0	19.0
25	13.0	9.0	3.0	5.5	7.5	10.0	13.0	17.0	22.0	24.0	22.0	19.0
26	13.0	8.0	2.0	5.0	7.5	8.5	12.0	16.0	21.0	26.5	22.0	20.0
27	12.0	7.5	4.0	6.0	7.0	9.0	14.0	14.5	20.0	26.0	21.0	20.0
28	14.0	8.5	6.0	5.5	9.0	12.0	16.0	14.0	20.5	24.5	22.0	19.0
29	14.0	8.0	6.0	5.0	---	12.0	14.0	13.5	21.0	23.5	19.0	18.5
30	13.5	9.0	6.0	4.5	---	14.0	13.5	12.0	20.0	22.5	24.0	19.0
31	13.5	---	5.0	3.0	---	14.0	---	12.0	---	22.5	24.0	---
MEAN	16.0	10.0	6.0	4.0	6.0	8.0	13.0	15.0	18.0	23.5	23.5	21.5

WTR YR 1981 MEAN 14.0 MAX 26.5 MIN 2.0

02012800 JACKSON RIVER AT FILTRATION PLANT, AT COVINGTON, VA

LOCATION.--Lat 37°48'39", long 79°59'19", Covington City, Hydrologic Unit 02080201, on left bank 250 ft (76 m) upstream from Dry Run and 1.7 mi (2.7 km) upstream from Dunlap Creek and bridge on U.S. Highway 60.

DRAINAGE AREA.--439 mi^2 (1,137 km^2).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: June 1978 to current year.

INSTRUMENTATION.--Temperature recorder since June 1978.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum recorded, 30.5°C July 21, 1980; minimum recorded, 0.5°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum recorded, 29.5°C July 27; minimum recorded, 0.5°C on many days during December to February.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	---	---	---	13.0	9.5	11.0	7.5	5.5	6.5	3.5	3.0	3.0
2	---	---	---	12.0	8.5	10.5	8.0	6.0	7.0	3.5	2.0	2.5
3	---	---	---	11.5	8.5	10.0	6.5	4.5	5.5	1.5	1.5	1.5
4	---	---	---	12.5	9.5	11.0	5.5	3.0	4.0	1.5	.5	.5
5	---	---	---	11.5	10.0	11.0	5.5	3.5	4.5	.5	.5	.5
6	---	---	---	11.0	8.5	9.5	8.0	5.5	7.0	.5	.5	.5
7	---	---	---	11.5	7.5	9.5	9.5	7.5	8.5	.5	.5	.5
8	---	---	---	13.5	10.0	12.0	9.5	7.5	8.5	.5	.5	.5
9	---	---	---	13.5	11.0	12.5	9.5	8.0	9.0	.5	.5	.5
10	20.0	16.5	18.0	13.0	10.5	11.5	9.0	7.5	8.5	1.0	.5	.5
11	20.5	17.0	18.0	10.5	8.0	9.0	7.0	5.5	6.0	.5	.5	.5
12	17.0	14.0	15.5	9.0	6.5	7.5	6.0	4.5	5.0	.5	.5	.5
13	15.5	12.5	13.5	9.0	6.0	7.5	6.0	4.0	5.0	.5	.5	.5
14	15.0	11.0	12.5	8.5	6.5	8.0	5.5	3.0	4.0	.5	.5	.5
15	15.5	11.0	13.0	10.0	8.5	9.5	4.0	3.0	3.5	.5	.5	.5
16	16.0	12.0	14.0	11.5	10.0	10.5	4.5	3.0	4.0	.5	.5	.5
17	17.0	13.0	15.0	9.5	7.5	8.5	5.5	3.5	4.0	.5	.5	.5
18	17.0	15.5	16.5	7.5	6.5	7.0	4.5	2.5	3.0	.5	.5	.5
19	19.0	16.0	17.0	8.5	6.5	7.0	6.0	3.0	4.0	1.0	.5	.5
20	16.5	14.0	15.5	7.5	5.5	6.5	3.0	1.5	2.0	.5	.5	.5
21	16.5	12.5	14.5	7.0	5.0	6.0	1.5	.5	.5	1.0	.5	1.0
22	15.5	12.0	13.5	7.5	5.5	6.5	.5	.5	.5	3.0	1.5	2.0
23	13.5	12.0	12.5	7.0	6.0	6.5	1.0	.5	.5	3.5	2.5	3.0
24	13.0	10.5	12.0	8.5	7.0	8.0	2.5	1.0	1.5	5.0	2.5	3.0
25	12.5	10.5	12.0	8.5	7.0	8.0	2.0	.5	1.0	5.0	1.5	3.0
26	12.0	9.0	10.0	7.0	5.5	6.5	.5	.5	.5	4.0	2.0	3.0
27	10.5	8.0	9.5	6.5	6.0	6.5	1.0	.5	.5	4.5	2.5	3.5
28	12.5	9.5	11.0	7.0	6.5	6.5	1.5	.5	1.0	5.0	2.5	3.5
29	13.0	11.5	12.0	6.5	5.5	6.0	4.0	1.5	3.0	5.0	2.0	3.0
30	13.5	11.5	12.0	7.0	5.0	6.0	4.5	4.0	4.5	3.5	1.5	2.0
31	13.0	10.0	11.5	---	---	---	4.0	3.5	4.0	2.5	.5	1.0
MONTH	20.5	8.0	13.5	13.5	5.0	8.5	9.5	.5	4.0	5.0	.5	1.5

02012800 JACKSON RIVER AT FILTRATION PLANT, AT COVINGTON, VA--Continued

TEMPERATURE. WATER (DEG. C). WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	1.5	.5	.5	9.0	7.5	8.5	14.0	12.0	13.0	14.5	12.5	13.0
2	3.0	1.5	2.0	8.0	6.0	7.5	15.5	10.5	12.5	15.0	12.0	13.0
3	1.5	.5	1.0	8.5	5.0	6.5	16.5	11.0	13.5	15.5	11.5	13.5
4	1.5	.5	.5	6.0	4.5	5.5	17.0	13.0	15.0	18.5	13.0	15.5
5	.5	.5	.5	6.5	5.0	6.0	15.5	13.0	15.0	19.0	15.0	16.5
6	1.5	.5	.5	8.5	5.0	6.5	14.0	10.5	12.0	16.5	15.0	16.0
7	1.5	.5	1.0	8.5	5.0	6.5	14.5	8.5	11.0	18.0	13.0	15.0
8	3.0	1.5	2.0	8.5	4.5	6.5	16.0	10.0	12.5	18.0	13.5	15.5
9	3.5	.5	1.5	6.5	5.5	6.0	14.5	13.0	13.5	18.0	14.0	15.5
10	2.5	1.0	1.5	6.5	4.5	5.5	16.0	11.5	14.0	17.5	15.5	16.5
11	5.0	2.5	3.5	7.0	5.0	6.0	18.0	13.0	15.0	19.0	16.5	17.5
12	3.5	1.5	2.5	9.0	5.0	6.5	17.0	15.5	16.0	17.5	15.0	16.5
13	4.0	1.5	2.0	10.0	6.5	8.0	15.5	13.0	14.5	18.5	13.0	15.5
14	5.0	1.5	3.0	10.0	6.5	7.5	16.0	12.5	13.5	20.0	16.0	18.0
15	6.0	2.0	3.5	10.5	5.0	7.5	17.5	12.0	14.5	18.5	15.5	17.0
16	7.0	3.0	5.0	9.0	6.5	8.0	17.0	12.0	14.0	16.0	14.0	15.0
17	8.5	6.0	7.0	9.5	5.0	7.0	14.5	13.5	14.0	18.0	13.5	15.5
18	10.5	8.0	9.0	7.5	6.0	7.0	17.5	13.0	14.5	17.0	14.0	15.5
19	9.5	9.0	9.0	7.0	4.0	5.5	17.5	13.5	15.5	14.0	12.0	13.0
20	8.5	7.5	8.5	5.5	3.5	4.0	17.0	14.5	15.5	11.0	8.5	9.0
21	8.5	6.5	7.5	7.5	4.0	5.5	14.5	11.0	12.5	12.0	8.5	9.5
22	8.5	6.5	7.5	5.5	4.0	5.0	13.0	10.0	12.0	12.5	8.5	10.5
23	9.5	8.0	8.5	8.0	4.0	6.0	13.0	11.5	12.5	13.0	8.5	11.0
24	7.5	6.0	6.5	11.5	5.5	8.0	13.5	10.5	11.5	17.0	11.5	14.5
25	8.5	4.5	6.5	12.0	7.0	9.0	12.0	9.5	10.5	17.5	13.5	16.0
26	8.5	5.0	6.5	11.5	7.5	9.5	13.5	9.5	12.0	17.5	14.5	16.0
27	8.5	4.5	6.5	11.0	9.0	9.5	14.5	11.0	13.0	17.0	15.0	15.5
28	8.0	6.0	7.0	13.0	7.0	10.0	17.0	13.0	15.0	15.0	13.5	14.0
29	---	---	---	14.5	9.0	11.5	16.0	14.0	15.0	14.5	10.5	13.0
30	---	---	---	14.5	12.0	13.0	15.5	13.5	14.0	13.0	10.5	11.5
31	---	---	---	16.5	11.0	13.5	---	---	---	12.5	11.0	11.5
MONTH	10.5	.5	4.5	16.5	3.5	7.5	18.0	8.5	13.5	20.0	8.5	14.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	12.0	11.5	11.5	21.5	19.5	20.5	26.5	21.0	23.5	25.0	23.0	24.0
2	14.0	12.0	13.0	21.5	19.0	20.0	25.5	22.0	23.5	27.0	23.0	25.0
3	15.5	12.5	13.5	20.5	19.0	19.5	25.5	23.0	24.0	28.0	25.0	26.0
4	15.0	12.5	13.5	22.5	19.0	20.5	27.5	23.0	24.5	26.0	[illegible]	25.0
5	15.5	12.5	14.0	23.0	20.5	21.5	28.5	23.5	25.5	25.5	[illegible]	24.0
6	14.0	12.5	13.5	21.5	20.0	20.5	25.5	23.5	24.0	26.0	23.0	24.5
7	16.5	13.0	14.5	24.5	20.0	22.0	26.0	23.0	24.5	26.0	23.5	24.5
8	16.5	12.5	14.5	25.0	22.5	23.5	27.0	23.5	25.0	25.0	23.0	24.0
9	16.5	13.5	14.5	26.5	23.0	24.5	28.0	23.0	25.0	24.0	20.5	22.5
10	16.0	13.5	15.0	26.5	24.0	25.0	28.0	23.0	25.0	24.0	19.5	21.5
11	19.0	13.5	15.5	26.0	23.5	24.5	28.5	23.5	25.5	25.5	19.5	22.0
12	18.5	13.5	15.0	26.5	24.0	25.0	27.0	24.0	25.5	26.5	20.5	23.5
13	15.5	13.5	14.5	24.5	23.0	24.0	26.0	22.5	24.0	26.5	21.5	23.5
14	18.0	14.0	16.0	27.0	23.0	24.5	25.5	21.5	23.5	26.0	22.0	24.0
15	19.0	14.0	16.5	28.0	23.0	25.0	26.0	22.5	24.0	24.5	22.5	24.0
16	23.5	18.5	21.0	25.5	23.0	24.0	28.0	23.0	25.0	24.5	21.5	23.0
17	24.0	21.0	22.5	28.0	23.0	25.0	26.0	23.0	24.5	22.5	19.5	21.0
18	23.0	19.5	21.0	27.5	24.0	25.5	26.0	21.0	23.0	20.0	16.5	18.5
19	23.0	19.5	21.0	26.0	23.5	25.0	23.0	21.0	22.0	19.0	15.5	17.0
20	23.0	20.5	21.5	28.0	24.0	26.0	25.0	19.0	21.5	21.0	15.0	17.5
21	23.5	19.5	21.0	28.5	24.5	26.0	23.5	19.0	21.5	21.5	15.5	18.5
22	23.0	20.5	22.0	28.0	23.5	25.5	25.5	20.0	22.0	22.0	16.5	19.0
23	23.5	20.0	21.5	25.5	22.5	24.0	25.5	20.0	22.5	21.0	16.5	18.5
24	23.0	19.5	20.5	24.0	23.0	23.5	25.5	20.0	22.5	20.5	14.0	17.0
25	25.0	22.0	23.5	25.5	22.5	23.5	26.0	20.5	23.0	20.0	14.0	16.5
26	24.0	21.0	22.5	28.0	23.0	25.0	25.0	20.5	23.0	20.5	15.0	17.5
27	24.0	19.0	21.0	29.5	24.5	26.5	25.0	20.5	23.0	22.0	16.0	19.0
28	24.5	19.0	21.5	27.0	25.0	25.5	26.0	21.0	23.5	22.5	17.0	19.5
29	24.0	19.5	21.5	26.0	24.0	25.0	24.5	21.0	23.0	20.5	15.0	17.5
30	22.0	20.0	21.0	26.5	21.5	24.0	24.5	21.5	23.0	20.0	15.5	17.5
31	---	---	---	25.5	21.0	23.0	26.0	22.5	24.0	---	---	---
MONTH	25.0	11.5	18.0	29.5	19.0	24.0	28.5	19.0	23.5	28.0	14.0	21.0
YEAR	29.5	.5	13.0									

02013000 DUNLAP CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°48'10", long 80°02'50", Alleghany County, Hydrologic Unit 02080201, on right bank 20 ft (6 m) downstream from bridge on U.S. Highway 60, 2.2 mi (3.5 km) downstream from Ogle Creek, and 3.0 mi (4.8 km) west of Covington.

DRAINAGE AREA.--164 mi^2 (425 km^2).

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1929-30, 1932-34, 1942. WSP 1303: 1929-35(M), 1937-38(M), 1941-48(M). WSP 2104: Drainage area. WDR VA-74-1: 1969(M), 1972, 1973(P).

GAGE.--Water-stage recorder. Datum of gage is 1,294.70 ft (394.625 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 8, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good. Occasional diurnal fluctuation caused by dam 7.9 mi (12.7 km) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 166 ft^3/s (4.701 m^3/s), 13.75 in/yr (349 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,400 ft^3/s (776 m^3/s) June 21, 1972, gage height, 15.65 ft (4.770 m), from rating curve extended above 4,500 ft^3/s (130 m^3/s) on basis of step-backwater computations and contracted-opening measurement at gage height 15.65 ft (4.770 m); minimum, 2.0 ft^3/s (0.057 m^3/s) July 4, 1970; minimum daily, 7.0 ft^3/s (0.20 m^3/s) Sept. 9, 1966; minimum gage height, 0.69 ft (0.210 m) June 6, July 14, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 18 ft (5.5 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft^3/s (57 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 28	2330	*5230	148	8.44	2.573	June 2	1400	2220	62.9	5.58	1.701

Minimum discharge, 7.9 ft^3/s (0.22 m^3/s) June 27, gage height, 0.97 ft (0.296 m); minimum daily, 12 ft^3/s (0.34 m^3/s) Aug. 26, 27, 29, Sept. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	21	38	29	22	96	143	93	327	44	21	13
2	23	21	36	28	54	87	137	83	1730	43	20	14
3	22	20	35	27	98	78	120	72	988	47	20	15
4	21	21	34	22	82	73	108	64	533	46	19	21
5	21	22	33	20	78	159	101	59	437	42	18	34
6	21	22	32	27	66	276	93	56	372	69	22	25
7	20	21	31	28	54	204	79	54	740	84	21	30
8	19	22	29	24	47	152	70	49	457	59	21	26
9	18	22	30	25	47	120	67	45	295	47	20	22
10	18	23	33	23	39	101	67	43	211	41	18	20
11	18	22	32	17	134	89	61	56	158	40	17	18
12	17	22	32	24	178	79	57	68	124	37	17	17
13	17	23	31	24	141	71	66	61	105	33	18	16
14	17	22	31	25	107	64	82	55	95	32	18	15
15	17	23	31	22	83	58	103	66	81	30	17	16
16	18	25	31	22	71	55	114	83	70	30	17	18
17	18	30	30	22	70	53	212	82	65	32	16	18
18	18	49	29	19	81	51	585	75	59	29	16	17
19	18	51	28	23	107	51	329	409	57	30	15	17
20	18	40	27	22	189	47	481	1180	57	29	14	15
21	18	34	22	24	234	44	515	527	55	27	14	14
22	18	31	24	25	177	42	331	296	54	25	14	14
23	18	30	26	25	198	46	244	200	48	24	13	13
24	18	60	27	25	359	48	230	148	44	25	13	13
25	26	106	25	24	236	70	208	115	40	26	13	13
26	31	72	23	25	165	107	176	93	40	30	12	13
27	29	54	27	25	125	120	150	88	36	26	12	13
28	25	47	25	27	103	123	129	2930	34	26	13	12
29	23	44	26	27	---	110	114	2700	31	26	12	12
30	22	40	29	27	---	116	103	739	33	25	13	12
31	22	---	29	23	---	137	---	428	---	22	14	---
TOTAL	634	1040	916	750	3345	2927	5275	11017	7376	1126	508	516
MEAN	20.5	34.7	29.5	24.2	119	94.4	176	355	246	36.3	16.4	17.2
MAX	31	106	38	29	359	276	585	2930	1730	84	22	34
MIN	17	20	22	17	22	42	57	43	31	22	12	12
CFSM	.13	.21	.18	.15	.73	.58	1.07	2.17	1.50	.22	.10	.11
IN.	.14	.24	.21	.17	.76	.66	1.20	2.50	1.67	.26	.12	.12

CAL YR 1980 TOTAL 64534 MEAN 176 MAX 2320 MIN 17 CFSM 1.07 IN 14.64
WTR YR 1981 TOTAL 35430 MEAN 97.1 MAX 2930 MIN 12 CFSM .59 IN 8.04

02013100 JACKSON RIVER BELOW DUNLAP CREEK, AT COVINGTON, VA

LOCATION.--Lat 37°47'19", long 80°00'03", Covington City, Hydrologic Unit 02080201, on left bank in city recreation park, 0.5 mi (0.8 km) downstream from Dunlap Creek.

DRAINAGE AREA.--614 mi² (1,590 km²).

PERIOD OF RECORD.--October 1974 to current year.

REVISED RECORDS.--WDR VA-76-1: 1975(M).

GAGE.--Water-stage recorder. Datum of gage is 1,206.50 ft (367.741 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Small diurnal fluctuation at low flow caused by Westvaco plant 0.8 mi (1.3 km) upstream and occasionally by dam on Dunlap Creek 12.7 mi (20.4 km) upstream. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 19.9 mi (32.0 km) upstream. Diversion by Westvaco plant averages 47 ft³/s (1.33 m³/s) for industrial use of which approximately 42 ft³/s (1.19 m³/s) is returned above station. Diversion 2.0 mi (3.2 km) above station for town of Covington water supply averages less than 4.0 ft³/s (0.11 m³/s). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years, 722 ft³/s (20.45 m³/s), 15.97 in/yr (406 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,200 ft³/s (657 m³/s), Apr. 5, 1977, gage height, 19.85 ft (6.050 m); minimum, 41 ft³/s (1.16 m³/s) Jan. 5, 1981, gage height, 4.38 ft (1.335 m), result of freezeup; minimum daily, 67 ft³/s (1.90 m³/s) Sept. 3, 27-29, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 24.36 ft (7.425 m), discharge, about 34,000 ft³/s (960 m³/s), from floodmarks, and flood of Dec. 27, 1973, reached a stage of 22.09 ft (6.733 m), from floodmarks, discharge, about 28,000 ft³/s (790 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,550 ft³/s (214 m³/s) May 28, gage height, 10.94 ft (3.335 m); minimum, 41 ft³/s (1.16 m³/s) Jan. 5, gage height, 4.38 ft (1.335 m), result of freezeup; minimum daily, 67 ft³/s (1.90 m³/s) Sept. 3, 27-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	168	117	186	125	108	216	273	419	3090	185	135	81
2	145	112	134	126	152	206	278	401	4890	180	134	72
3	134	117	134	122	195	190	259	366	3760	206	140	67
4	123	123	134	105	158	186	241	290	3050	264	140	102
5	123	123	128	102	155	300	235	277	1680	225	138	118
6	123	117	128	129	152	461	223	249	1650	335	154	107
7	117	117	128	140	139	364	192	267	2070	361	148	123
8	112	117	128	128	139	293	191	268	1750	317	142	107
9	112	112	128	133	122	250	188	239	1490	297	139	107
10	102	112	134	131	132	224	189	159	1330	285	137	102
11	96	112	139	119	526	210	178	194	1030	283	136	96
12	96	112	134	119	1360	194	171	230	1540	278	137	86
13	96	112	134	120	267	185	186	318	1880	259	136	86
14	96	123	134	127	219	177	192	353	1570	186	136	81
15	96	123	134	124	181	170	217	425	854	131	136	86
16	96	134	134	117	169	167	230	434	314	119	139	102
17	96	145	131	113	165	163	308	425	211	139	132	91
18	96	186	134	108	184	165	813	426	195	128	108	91
19	96	217	129	117	211	165	541	1140	199	138	105	86
20	96	192	131	117	315	150	697	3200	270	133	103	86
21	96	180	120	120	400	148	1040	3230	260	120	95	81
22	91	180	118	122	321	145	929	2510	258	117	92	81
23	102	186	123	122	334	151	732	1390	249	120	90	81
24	102	248	130	120	590	150	841	988	236	133	88	77
25	128	315	124	117	425	164	810	861	191	130	88	77
26	128	242	108	117	321	203	762	703	173	133	82	72
27	117	210	122	113	262	218	683	606	170	132	86	67
28	123	210	117	116	231	222	526	4930	166	139	86	67
29	112	198	118	113	---	209	408	4820	162	136	86	67
30	117	192	125	112	---	226	400	3590	169	139	86	72
31	117	---	122	105	---	257	---	3110	---	134	81	---
TOTAL	3452	4784	4023	3699	7933	6529	12933	36818	34857	5882	3635	2619
MEAN	111	159	130	119	283	211	431	1188	1162	190	117	87.3
MAX	168	315	186	140	1360	461	1040	4930	4890	361	154	123
MIN	91	112	108	102	108	145	171	159	162	117	81	67
(*)	+3	+44	+35	-2	+313	+140	+145	+251	-166	+3	-13	+10
MEAN‡	114	203	165	117	596	351	576	1439	996	193	104	97.3
CFSM‡	.19	.33	.27	.19	.97	.57	.94	2.34	1.62	.31	.17	.16
IN‡	.21	.37	.31	.22	1.01	.66	1.05	2.70	1.81	.36	.20	.18

CAL YR 1980 TOTAL 252427 MEAN 690 MAX 5850 MIN 91 MEAN‡ 743 CFSM‡ 1.21 IN‡ 16.48
WTR YR 1981 TOTAL 127164 MEAN 348 MAX 4930 MIN 67 MEAN‡ 410 CFSM‡ .67 IN‡ 9.07

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02014000 POTTS CREEK NEAR COVINGTON, VA

LOCATION.--Lat 37°43'44", long 80°02'33", Alleghany County, Hydrologic Unit 02080201, on left bank at downstream side of bridge on State Highway 18, 0.8 mi (1.3 km) downstream from Blue Spring Creek, and 5.2 mi (8.4 km) southwest of Covington.

DRAINAGE AREA.--153 mi^2 (396 km^2).

PERIOD OF RECORD.--October 1928 to September 1956, October 1965 to current year.

REVISED RECORDS.--WSP 1723: 1935, 1936(M), 1940(M), 1942(M), 1948-49(M), 1951-52(M), 1954(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,273.93 ft (388.294 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1956, nonrecording gage at site 1.3 mi (2.1 km) downstream at different datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--44 years, 179 ft^3/s (5.069 m^3/s), 15.89 in/yr (404 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft^3/s (351 m^3/s) June 21, 1972, gage height, 12.33 ft (3.758 m); minimum observed, 13 ft^3/s (0.37 m^3/s) Nov. 29, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,500 ft^3/s (70.8 m^3/s) at 2200 hours May 28, gage height, 6.58 ft (2.006 m), no other peak above base of 2,400 ft^3/s (68 m^3/s); minimum, 18 ft^3/s (0.51 m^3/s) Dec. 22, Sept. 24-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	39	53	49	31	115	153	89	387	65	25	20
2	35	39	50	32	66	106	146	85	1230	74	25	20
3	35	39	49	32	91	95	129	77	1040	75	24	22
4	35	40	47	32	68	89	117	71	636	71	24	33
5	35	40	45	33	67	128	113	67	642	69	24	46
6	35	42	45	30	63	166	109	65	499	89	26	40
7	34	42	44	32	60	148	96	62	597	108	25	38
8	34	41	43	34	55	132	89	58	452	79	26	32
9	32	41	44	33	49	117	87	53	344	66	25	26
10	32	44	46	32	48	106	89	52	273	59	24	26
11	31	42	47	30	114	99	82	70	210	56	23	25
12	31	39	44	29	168	91	79	102	161	54	23	23
13	30	38	42	29	139	84	87	86	143	48	25	22
14	31	38	41	30	116	79	104	79	126	44	24	21
15	31	40	40	31	95	73	108	88	108	50	23	22
16	32	43	40	33	90	71	108	91	99	49	22	25
17	32	55	40	31	90	70	133	79	89	52	23	23
18	34	83	39	32	91	68	295	74	83	47	23	23
19	36	76	38	33	96	67	252	118	82	42	22	22
20	39	59	38	35	131	64	315	494	94	38	22	20
21	40	50	30	38	170	60	305	390	84	36	21	19
22	40	46	27	39	145	58	255	278	76	34	21	19
23	40	46	34	40	165	62	223	205	69	30	21	19
24	42	57	38	39	296	69	201	158	63	30	20	19
25	57	79	36	37	227	91	168	127	60	31	20	18
26	80	71	35	40	176	115	140	105	62	31	20	18
27	64	62	33	42	141	130	122	114	56	36	20	18
28	48	62	39	43	120	147	108	1540	52	31	20	18
29	44	61	42	40	---	143	99	1530	48	29	20	18
30	40	57	47	39	---	147	95	745	49	28	20	18
31	40	---	49	31	---	165	---	492	---	27	20	---
TOTAL	1205	1511	1285	1080	3168	3155	4407	7644	7914	1578	701	713
MEAN	38.9	50.4	41.5	34.8	113	102	147	247	264	50.9	22.6	23.8
MAX	80	83	53	49	296	166	315	1540	1230	108	26	46
MIN	30	38	27	29	31	58	79	52	48	27	20	18
CFSM	.25	.33	.27	.23	.74	.67	.96	1.61	1.73	.33	.15	.16
IN.	.29	.37	.31	.26	.77	.77	1.07	1.86	1.92	.38	.17	.17

CAL YR 1980 TOTAL 66631 MEAN 182 MAX 1910 MIN 27 CFSM 1.19 IN 16.20
WTR YR 1981 TOTAL 34361 MEAN 94.1 MAX 1540 MIN 18 CFSM .62 IN 8.35

02015700 BULLPASTURE RIVER AT WILLIAMSVILLE, VA

LOCATION.--Lat 38°11'43", long 79°34'14", Bath County, Hydrologic Unit 02080201, on left bank 15 ft (5 m) downstream from bridge on State Highway 614 at Williamsville and 0.62 mi (1.00 km) upstream from mouth.

DRAINAGE AREA.--110 mi^2 (285 km^2).

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,610.14 ft (490.771 m) National Geodetic Vertical Datum of 1929. Prior to July 12, 1974, at site 700 ft (213 m) upstream at datum 11.84 ft (3.609 m) higher.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--21 years, 144 ft^3/s (4.078 m^3/s), 17.78 in/yr (452 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,430 ft^3/s (267 m^3/s) Apr. 5, 1977, from rating curve extended above 3,300 ft^3/s (93 m^3/s); maximum gage height, 10.84 ft (3.304 m) Dec. 26, 1973, from floodmarks; minimum discharge, 19 ft^3/s (0.54 m^3/s) Jan. 4, 1981, result of freezeup; minimum daily, 23 ft^3/s (0.65 m^3/s) Sept. 8, 9, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,890 ft^3/s (53.5 m^3/s) Feb. 11, gage height, 5.49 ft (1.673 m), no peak above base of 2,000 ft^3/s (57 m^3/s); minimum, 19 ft^3/s (0.54 m^3/s) Jan. 4, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	37	59	40	27	99	86	64	167	58	31	32
2	39	36	56	38	270	90	90	64	393	91	30	29
3	39	36	59	33	84	81	83	59	336	83	31	29
4	38	37	54	33	59	73	76	56	412	79	33	42
5	38	38	54	33	54	76	78	55	266	97	30	50
6	37	37	54	35	49	76	79	54	248	180	36	33
7	37	37	53	35	49	68	72	55	261	148	43	54
8	36	38	49	34	48	64	70	51	189	95	43	41
9	35	38	49	34	38	60	68	49	160	76	36	36
10	34	39	50	33	39	57	66	48	218	66	31	32
11	34	38	48	33	890	57	62	57	167	58	30	30
12	34	37	46	33	150	55	61	66	132	53	30	29
13	34	37	45	33	97	55	59	57	119	47	30	27
14	32	37	44	33	78	53	57	54	106	47	29	26
15	33	37	42	33	73	49	62	64	93	43	29	27
16	33	40	42	33	70	50	57	68	84	41	29	47
17	33	45	42	32	76	46	59	61	74	41	29	42
18	33	123	40	30	86	53	72	66	68	39	27	35
19	35	73	44	32	95	49	66	433	67	39	26	32
20	35	54	36	33	160	48	88	781	78	55	26	31
21	35	48	31	34	148	49	102	400	68	42	25	30
22	35	46	33	35	125	49	99	240	68	37	25	30
23	35	44	39	39	258	51	95	178	60	35	25	29
24	34	210	41	39	284	55	95	143	53	33	25	27
25	61	148	38	37	178	56	90	121	50	37	25	27
26	57	88	35	40	139	56	79	104	48	37	25	28
27	44	73	38	40	116	59	74	97	45	35	25	27
28	41	79	38	41	106	67	68	364	42	39	25	27
29	39	73	39	38	---	64	67	365	41	43	25	27
30	38	66	42	31	---	74	66	225	40	36	25	27
31	37	---	39	28	---	90	---	195	---	33	26	---
TOTAL	1164	1769	1379	1075	3846	1929	2246	4694	4153	1843	905	983
MEAN	37.5	59.0	44.5	34.7	137	62.2	74.9	151	138	59.5	29.2	32.8
MAX	61	210	59	41	890	99	102	781	412	180	43	54
MIN	32	36	31	28	27	46	57	48	40	33	25	26
CFSM	.34	.54	.41	.32	1.25	.57	.68	1.37	1.26	.54	.27	.30
IN.	.39	.60	.47	.36	1.30	.65	.76	1.59	1.40	.62	.31	.33

CAL YR 1980 TOTAL 54529 MEAN 149 MAX 2880 MIN 31 CFSM 1.36 IN 18.44
WTR YR 1981 TOTAL 25986 MEAN 71.2 MAX 890 MIN 25 CFSM .65 IN 8.79

02016000 COWPASTURE RIVER NEAR CLIFTON FORGE, VA

LOCATION.--Lat 37°47'30", long 79°45'35", Alleghany County, Hydrologic Unit 02080201, on left bank 100 ft (30 m) downstream from highway bridge, 2.5 mi (4.0 km) upstream from confluence with Jackson River, and 4.0 mi (6.4 km) southeast of Clifton Forge.

DRAINAGE AREA.--461 mi² (1,194 km²).

PERIOD OF RECORD.--March 1925 to current year. Records for May 1907 to August 1908, published in WSP 242, are unreliable and should not be used.

REVISED RECORDS.--WSP 952: 1925-41. WSP 2104: Drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,006.93 ft (306.912 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to October 1934, nonrecording gage at site 100 ft (30 m) upstream at present datum.

REMARKS.--Records good. Low flow affected by springs and by occasional regulation from unknown source. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--56 years, 523 ft³/s (14.81 m³/s), 15.41 in/yr (391 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,200 ft³/s (969 m³/s) Mar. 18, 1936, gage height, 18.62 ft (5.675 m), from rating curve extended above 13,000 ft³/s (370 m³/s) on basis of slope-area measurement at gage height 15.70 ft (4.785 m); minimum, 38 ft³/s (1.08 m³/s) Sept. 2, 1932; minimum daily, 40 ft³/s (1.13 m³/s) Sept. 1, 1932; minimum gage height, 1.43 ft (0.436 m) Jan. 31, 1981, result of freezeup.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 20.8 ft (6.34 m), from floodmarks, discharge, about 45,000 ft³/s (1,300 m³/s), from rating curve extended above 13,000 ft³/s (370 m³/s) on basis of records for other stations in James River basin.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,060 ft³/s (172 m³/s) at 1600 hours May 28, gage height, 8.01 ft (2.441 m), no other peak above base of 5,000 ft³/s (140 m³/s); minimum, 40 ft³/s (1.13 m³/s) Jan. 31, result of freezeup, gage height, 1.43 ft (0.436 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	88	195	103	122	340	255	216	863	118	83	63
2	92	88	174	98	198	310	273	207	1990	124	78	173
3	92	86	160	96	484	278	275	191	2790	184	73	176
4	92	90	154	90	268	255	257	177	2590	211	72	128
5	90	92	149	82	198	285	260	165	1860	240	74	226
6	83	92	140	109	196	324	265	161	1210	256	83	202
7	88	90	137	107	179	311	268	161	1050	443	102	152
8	86	88	133	100	173	272	262	154	857	405	110	147
9	86	88	131	100	143	244	253	145	663	282	101	133
10	86	89	132	99	158	225	242	138	530	217	90	112
11	84	88	129	93	656	210	226	143	586	177	81	96
12	82	86	127	110	1610	199	209	207	456	195	77	85
13	80	86	120	104	643	190	210	213	372	142	73	80
14	80	85	116	102	454	180	202	195	331	135	71	75
15	80	85	114	95	347	169	202	202	289	140	70	75
16	78	92	111	90	279	162	196	209	249	130	71	81
17	81	115	109	88	254	151	216	215	222	120	67	104
18	80	220	108	86	248	153	303	200	190	112	65	105
19	84	277	107	90	268	156	310	262	182	108	62	92
20	82	225	103	92	399	155	331	2120	174	120	61	88
21	80	166	93	95	709	146	351	1870	174	140	61	75
22	80	137	90	97	582	142	362	1030	187	120	60	73
23	78	125	100	98	532	148	340	605	165	110	59	70
24	80	198	102	96	1170	150	341	523	154	95	57	67
25	108	585	95	95	950	169	335	414	139	85	57	65
26	113	437	90	94	660	150	305	360	130	92	57	64
27	169	282	94	84	475	151	277	298	123	93	56	64
28	118	237	98	92	304	152	255	3680	116	88	57	63
29	101	238	100	92	---	157	237	3330	109	94	56	61
30	94	219	100	90	---	174	222	1500	108	102	55	60
31	92	---	102	89	---	206	---	1030	---	92	59	---
TOTAL	2797	4876	3713	2955	12714	6292	8038	20711	18868	4930	2198	3067
MEAN	90.2	162	120	95.3	454	203	268	652	629	159	70.9	102
MAX	169	585	195	110	1610	340	362	3680	2790	443	110	226
MIN	78	85	90	82	122	142	196	138	108	85	55	60
CFSM	.20	.35	.26	.21	.99	.44	.58	1.41	1.36	.35	.15	.22
IN.	.23	.39	.30	.24	1.03	.51	.65	1.63	1.52	.40	.18	.25

CAL YR 1980 TOTAL 197966 MEAN 541 MAX 8510 MIN 78 CFSM 1.17 IN 15.97
WTR YR 1981 TOTAL 90635 MEAN 248 MAX 3680 MIN 55 CFSM .54 IN 7.31

02016500 JAMES RIVER AT LICK RUN, VA

LOCATION.--Lat 37°46'25", long 79°47'05", Botetourt County, Hydrologic Unit 02080201, on right bank at community of Lick Run, 1,000 ft (305 m) downstream from bridge on U.S. Highway 220, 0.9 mi (1.4 km) downstream from confluence of Cowpasture and Jackson Rivers, 1.8 mi (2.9 km) south of Iron Gate, and at mile 342.3 (550.8 km).

DRAINAGE AREA.--1,373 mi² (3,556 km²).

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 852: 1936-37. WSP 972: 1927, 1930(M), 1932(M), 1935-36. WSP 1303: 1927-28(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 978.30 ft (298.186 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 26, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, July 9 to Aug. 18, which are fair. Flow regulated by Moomaw Lake (station 02011795) 43.8 mi (70.5 km) upstream. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--56 years, 1,601 ft³/s (45.34 m³/s), 15.84 in/yr (402 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 66,600 ft³/s (1,890 m³/s) Mar. 18, 1936; maximum gage height, 27.01 ft (8.233 m) June 21, 1972; minimum discharge, 133 ft³/s (3.77 m³/s) Jan. 6, 1981, result of freezeup; minimum daily, 156 ft³/s (4.42 m³/s) Oct. 12, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of about 33 ft (10.1 m), discharge, about 120,000 ft³/s (3,400 m³/s). Flood in March 1913 reached a stage of 30.4 ft (9.27 m), from floodmarks, discharge, about 98,000 ft³/s (2,800 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,800 ft³/s (532 m³/s) May 28, gage height, 13.43 ft (4.093 m); minimum, 133 ft³/s (3.77 m³/s) Jan. 6, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	268	528	310	197	858	827	840	4600	440	290	218
2	317	268	477	301	426	838	848	804	8860	460	290	318
3	294	264	415	285	795	702	828	751	8800	490	290	337
4	277	277	399	241	560	649	774	651	7220	660	290	358
5	268	290	389	180	420	755	753	602	4540	640	300	458
6	268	277	373	294	420	1070	739	586	3620	890	330	442
7	268	272	369	308	410	1010	695	548	3880	1030	330	359
8	259	270	359	276	429	880	660	559	3300	963	340	357
9	255	269	355	279	342	819	649	536	2670	750	350	311
10	251	270	357	280	344	697	635	446	2260	650	350	283
11	242	267	350	244	1050	652	609	497	2060	620	340	264
12	238	261	336	240	3380	689	573	645	1910	580	310	249
13	234	260	325	260	1300	573	586	716	2390	540	290	235
14	234	259	318	287	963	538	593	733	2200	450	290	233
15	238	264	311	272	795	506	640	810	1480	400	280	239
16	238	294	308	265	676	487	657	836	900	360	290	253
17	238	348	304	251	631	469	738	828	760	400	260	281
18	242	535	300	238	626	459	1400	885	560	350	240	267
19	246	690	298	250	681	470	1300	1160	520	350	226	255
20	238	617	286	257	919	450	1370	5760	610	350	225	238
21	238	500	256	271	1430	424	1840	5830	620	360	219	231
22	238	441	222	280	1250	411	1690	4240	620	330	212	227
23	236	418	285	288	1170	436	1520	2500	580	310	208	221
24	238	553	297	278	2210	433	1390	1790	540	310	207	213
25	326	1130	263	269	1850	448	1400	1530	500	300	206	212
26	360	951	210	275	1330	520	1290	1240	450	310	204	214
27	386	721	272	271	1060	577	1190	1150	420	320	201	206
28	330	633	296	277	911	594	1030	12200	400	310	204	202
29	299	612	294	280	---	600	876	12400	390	300	203	197
30	281	573	300	269	---	635	842	6780	400	330	201	195
31	272	---	309	251	---	752	---	5140	---	310	207	---
TOTAL	8367	13052	10161	8319	26575	19319	28950	73913	68040	14863	8183	8073
MEAN	270	435	328	268	949	623	965	2384	2268	479	264	269
MAX	386	1130	528	310	3380	1070	1840	12400	8860	1030	350	458
MIN	234	259	210	180	197	411	573	446	390	300	201	195
(*)	+3	+44	+35	-2	+313	+140	+145	+251	-166	+3	-13	+10
MEAN‡	273	479	363	266	1262	763	1110	2635	2102	482	251	279
CFSM‡	.20	.35	.26	.19	.92	.56	.81	1.92	1.53	.35	.18	.20
IN‡	.23	.39	.30	.22	.96	.65	.90	2.21	1.71	.40	.21	.22

CAL YR 1980 TOTAL 581496 MEAN 1589 MAX 18100 MIN 210 MEAN‡ 1642 CFSM‡ 1.20 IN‡ 16.33
WTR YR 1981 TOTAL 287815 MEAN 789 MAX 12400 MIN 180 MEAN‡ 851 CFSM‡ .62 IN‡ 8.42

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02017500 JOHNS CREEK AT NEW CASTLE, VA

LOCATION.--Lat 37°30'22", long 80°06'25", Craig County, Hydrologic Unit 02080201, on right bank 20 ft (6 m) downstream from bridge on State Highway 615 at New Castle and 1,700 ft (518 m) upstream from mouth.

DRAINAGE AREA.--104 mi² (269 km²).

PERIOD OF RECORD.--April 1926 to current year.

REVISED RECORDS.--WSP 972: 1935-36(M), 1940(M). WSP 1203: 1928, 1935. WSP 1303: 1927(M), 1928, 1929-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,254.30 ft (382.311 m) National Geodetic Vertical Datum of 1929. Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--55 years, 127 ft³/s (3.597 m³/s), 16.58 in/yr (421 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,000 ft³/s (227 m³/s) Jan. 23, 1935, from rating curve extended above 3,200 ft³/s (91 m³/s) on basis of slope-area measurement of peak flow; maximum gage height, 12.48 ft (3.804 m) June 21, 1972; minimum discharge, 6.0 ft³/s (0.17 m³/s) Dec. 5, 1946, result of freezeup; minimum daily, 6.6 ft³/s (0.19 m³/s) Oct. 1, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,960 ft³/s (112 m³/s) at 0930 hours May 28, gage height, 9.94 ft (3.030 m), no other peak above base of 2,100 ft³/s (59 m³/s); minimum, 7.0 ft³/s (0.20 m³/s) Aug. 25, gage height, 2.52 ft (0.768 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	20	31	27	30	84	131	61	250	25	16	11
2	16	19	30	26	63	75	123	57	790	45	14	11
3	16	19	29	26	82	66	109	51	733	44	14	11
4	15	20	28	22	70	62	98	47	451	36	14	20
5	16	20	27	23	65	87	95	44	378	32	14	22
6	17	20	27	21	60	125	90	41	302	63	13	16
7	17	19	26	23	54	118	78	39	496	54	13	14
8	16	19	25	24	46	108	71	36	321	37	14	15
9	16	19	27	24	43	97	69	34	253	31	14	16
10	15	20	28	23	40	86	69	33	208	28	12	15
11	15	19	27	21	98	78	65	41	175	31	12	14
12	14	18	27	17	170	71	62	50	138	26	12	13
13	13	19	26	18	120	65	65	49	113	24	12	12
14	12	19	25	20	98	59	71	46	95	24	10	11
15	13	19	24	21	91	55	80	53	77	24	10	12
16	16	21	24	22	76	53	86	53	64	26	12	13
17	14	25	24	22	67	51	107	47	54	31	11	14
18	16	33	24	20	66	49	163	45	46	31	10	12
19	26	32	23	21	68	48	162	104	41	28	9.7	11
20	20	29	21	22	104	45	173	323	76	26	9.6	11
21	16	27	19	24	121	43	173	250	52	25	9.6	10
22	16	25	20	25	112	41	161	202	46	23	10	10
23	16	24	24	25	141	47	150	165	35	21	8.9	9.7
24	16	38	24	24	176	58	138	138	30	20	8.3	9.6
25	27	50	20	24	150	96	121	113	28	20	8.7	9.0
26	39	41	21	24	130	114	104	92	27	22	8.4	9.3
27	26	38	23	25	111	118	89	95	24	24	8.4	9.3
28	24	38	24	24	95	119	77	2120	22	22	8.4	9.3
29	23	36	24	24	---	117	69	960	21	21	9.2	8.8
30	22	33	26	23	---	128	65	458	21	18	8.8	8.5
31	21	---	28	23	---	139	---	305	---	17	8.5	---
TOTAL	566	779	776	708	2547	2502	3114	6152	5367	899	343.5	367.5
MEAN	18.3	26.0	25.0	22.8	91.0	80.7	104	198	179	29.0	11.1	12.3
MAX	39	50	31	27	176	139	173	2120	790	63	16	22
MIN	12	18	19	17	30	41	62	33	21	17	8.3	8.5
CFSM	.18	.25	.24	.22	.88	.78	1.00	1.90	1.72	.28	.11	.12
IN.	.20	.28	.28	.25	.91	.89	1.11	2.20	1.92	.32	.12	.13

CAL YR 1980 TOTAL 44670.0 MEAN 122 MAX 1770 MIN 12 CFSM 1.17 IN 15.98
WTR YR 1981 TOTAL 24121.0 MEAN 66.1 MAX 2120 MIN 8.3 CFSM .64 IN 8.63

02018000 CRAIG CREEK AT PARR, VA

LOCATION.--Lat 37°39'57", long 79°54'42", Botetourt County, Hydrologic Unit 02080201, on right bank 12 ft (4 m) upstream from Chesapeake and Ohio Railway bridge, 700 ft (213 m) downstream from Stony Run, 0.2 mi (0.3 km) northeast of Horton, 0.4 mi (0.6 km) northwest of Parr, and 12 mi (19 km) upstream from mouth.

DRAINAGE AREA.--329 mi² (852 km²).

PERIOD OF RECORD.--April 1925 to current year.

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1935-36. WSP 1303: 1929-30(M), 1932-35(M), 1937-38(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 992.50 ft (302.514 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to June 7, 1937, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, Nov. 21 to Jan. 5 and May 28, 29, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--56 years, 385 ft³/s (10.90 m³/s), 15.89 in/yr (404 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,200 ft³/s (572 m³/s) June 21, 1972, gage height, 19.29 ft (5.880 m), from high-water mark in well; minimum daily, 25 ft³/s (0.71 m³/s) Sept. 4, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, about 7,500 ft³/s (212 m³/s) May 29, gage height, about 11.1 ft (3.389 m), no other peak above base of 4,200 ft³/s (120 m³/s); minimum, 20 ft³/s (0.57 m³/s), probably occurred Dec. 21, 25, or Jan. 4, gage height, 3.20 ft (0.975 m), result of freezeup; minimum daily, 31 ft³/s (0.88 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	70	110	90	47	216	458	169	820	66	56	43
2	60	68	105	75	80	198	395	158	1060	71	52	40
3	57	66	100	65	125	179	338	147	2090	115	51	43
4	55	72	95	55	150	164	294	137	1420	130	50	71
5	55	72	90	53	140	172	264	125	1340	104	48	70
6	57	71	90	55	130	226	248	115	967	108	51	71
7	56	70	88	54	120	284	226	111	1380	246	49	64
8	58	68	85	53	100	280	198	104	1200	205	51	55
9	55	66	80	57	92	252	185	97	808	144	53	50
10	55	65	85	52	88	226	182	95	634	115	52	50
11	52	64	90	48	120	208	172	111	502	122	51	50
12	52	62	90	46	380	192	164	137	405	130	49	47
13	50	62	87	50	320	175	169	147	334	106	47	45
14	50	62	85	60	280	164	172	139	280	97	47	43
15	52	64	80	64	222	155	185	132	233	90	45	41
16	52	66	80	65	195	147	198	139	198	97	43	43
17	52	72	78	54	182	142	226	137	166	94	42	43
18	61	85	78	52	172	137	330	127	144	104	42	43
19	66	104	77	65	166	137	390	139	137	97	41	42
20	77	104	77	64	182	130	405	450	152	95	40	41
21	77	85	70	72	272	122	453	700	205	94	39	39
22	65	80	72	74	289	120	431	552	150	88	38	38
23	61	74	84	77	268	127	400	431	127	82	38	35
24	61	70	85	76	352	139	366	348	104	77	37	34
25	77	125	70	70	356	179	330	289	92	77	37	33
26	94	170	76	68	316	256	289	233	85	76	35	33
27	118	145	80	70	272	280	248	291	80	70	36	33
28	90	130	82	72	240	284	219	3260	72	71	35	33
29	82	120	82	70	---	272	195	4770	68	70	35	32
30	78	115	82	66	---	276	179	1880	65	65	36	31
31	72	---	85	65	---	410	---	1150	---	61	41	---
TOTAL	2004	2547	2616	1957	5656	6249	8309	16820	15318	3167	1367	1336
MEAN	64.6	84.9	84.4	63.1	202	202	277	543	511	102	44.1	44.5
MAX	118	170	110	90	380	410	458	4770	2090	246	56	71
MIN	50	62	70	46	47	120	164	95	65	61	35	31
CFSM	.20	.26	.26	.19	.61	.61	.84	1.65	1.55	.31	.13	.14
IN.	.23	.29	.30	.22	.64	.71	.94	1.90	1.73	.36	.15	.15

CAL YR 1980 TOTAL 139530 MEAN 381 MAX 5960 MIN 46 CFSM 1.16 IN 15.78
WTR YR 1981 TOTAL 67346 MEAN 185 MAX 4770 MIN 31 CFSM .56 IN 7.61

02018500 CATAWBA CREEK NEAR CATAWBA, VA

LOCATION.--Lat 37°28'05", long 80°00'20", Botetourt County, Hydrologic Unit 02080201, on right bank 80 ft (24 m) upstream from highway bridge, 1.0 mi (1.6 km) downstream from Little Catawba Creek, 1.9 mi (3.1 km) west of Haymakertown, and 8.2 mi (13.2 km) northeast of Catawba.

DRAINAGE AREA.--34.3 mi^2 (88.8 km^2).

PERIOD OF RECORD.--September 1943 to current year.

REVISED RECORDS.--WSP 1303: 1944-45(M). WSP 2104: Drainage area. WDR VA-72-1: 1954, 1955(P), 1957-58(P), 1959, 1960-62(P), 1963, 1964(M), 1965-67(P), 1968(M), 1969, 1970(M), 1971.

GAGE.--Water-stage recorder. Datum of gage is 1,299.96 ft (396.228 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1953, nonrecording gage at site 80 ft (24 m) downstream at same datum.

REMARKS.--Records good. At a point 5.3 mi (8.5 km) above station, there is an occasional transmountain diversion through a tunnel into Roanoke River basin for municipal water supply of city of Roanoke since December 1974. Prior to October 1976, monthly means adjusted for pumpage by Citadel Cement Corp. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--38 years, 35.2 ft^3/s (0.997 m^3/s), 13.94 in/yr (354 mm/yr), adjusted for pumpage from October 1952 to September 1976.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,740 ft^3/s (219 m^3/s) June 21, 1972, gage height, 10.35 ft (3.155 m), from rating curve extended above 1,100 ft^3/s (31 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.36 ft^3/s (0.010 m^3/s) Jan. 3, 1981, result of freezeup; minimum daily, 0.67 ft^3/s (0.019 m^3/s) Aug. 14, 1981; minimum gage height, 0.54 ft (0.165 m) Sept. 7-11, 1944, site then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.26 ft (4.042 m), from information by observer.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 762 ft^3/s (21.6 m^3/s) at 1030 hours May 28, gage height, 4.19 ft (1.277 m), no other peak above base of 600 ft^3/s (17 m^3/s); minimum, 0.36 ft^3/s (0.010 m^3/s) Jan. 3, gage height, 1.05 ft (0.320 m), result of freezeup; minimum daily, 0.67 ft^3/s (0.019 m^3/s) Aug. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	4.1	5.0	4.7	3.2	6.2	8.8	6.6	18	6.2	2.9	1.6
2	4.4	4.1	5.0	4.0	7.3	5.9	8.0	5.9	18	5.6	2.9	2.0
3	4.1	4.4	4.4	3.0	3.8	5.9	7.3	6.2	21	5.6	2.7	2.7
4	3.5	5.0	4.4	2.5	3.2	6.2	7.3	5.6	34	5.0	2.9	6.2
5	4.7	4.7	4.4	4.1	3.8	6.6	7.3	5.6	36	5.6	2.4	3.8
6	5.6	4.4	4.4	3.5	3.5	6.2	6.6	5.6	27	11	2.4	2.9
7	4.4	4.1	4.4	3.8	3.8	6.2	6.6	5.6	40	6.6	2.9	3.2
8	4.1	4.1	4.4	3.8	4.4	5.9	6.6	5.3	26	5.3	4.4	3.5
9	3.9	4.1	6.9	3.8	3.5	5.9	6.6	4.7	19	4.1	3.2	3.5
10	3.8	3.8	6.6	3.2	4.1	5.9	6.2	5.6	15	5.3	3.2	2.2
11	3.5	3.8	5.0	3.2	9.6	5.9	6.2	7.3	15	5.0	2.9	2.0
12	2.9	3.5	5.0	1.8	6.9	5.6	5.9	5.9	9.6	4.7	2.7	1.8
13	3.2	3.8	4.7	1.6	6.2	5.6	6.6	5.3	10	5.0	2.9	1.6
14	3.5	4.1	4.7	1.8	6.2	5.3	6.6	5.0	9.2	4.7	.67	1.8
15	3.5	4.1	4.7	2.7	5.9	5.3	6.6	5.6	8.4	4.1	2.2	2.0
16	3.8	4.7	4.7	2.7	5.9	5.6	6.6	5.3	7.6	5.0	3.2	3.2
17	3.8	5.9	4.4	2.0	6.2	5.3	6.9	5.0	6.6	4.7	2.7	3.2
18	4.7	8.4	4.4	2.0	6.6	5.0	7.3	5.3	6.9	4.1	2.4	2.2
19	7.3	6.2	4.4	2.2	6.6	5.6	7.3	7.3	6.9	4.4	2.2	1.8
20	5.0	5.3	3.8	3.8	7.3	5.3	7.6	8.0	8.0	5.0	2.0	1.8
21	4.1	4.7	3.8	5.3	6.9	5.0	7.6	8.0	6.2	4.4	1.8	2.0
22	3.8	4.4	3.8	5.0	6.9	5.3	7.3	7.3	6.2	4.1	1.8	2.0
23	3.8	4.4	4.1	4.7	7.3	6.6	7.3	6.9	5.6	3.8	1.8	1.6
24	4.1	7.3	4.7	4.1	7.3	6.9	6.9	6.2	6.9	5.3	1.8	1.4
25	9.6	8.4	3.5	4.1	6.9	7.3	6.9	5.9	6.2	4.4	1.4	1.4
26	7.6	6.6	4.1	4.4	6.6	7.3	6.6	5.6	5.0	4.1	1.4	1.6
27	5.6	6.2	3.8	4.4	6.6	6.9	4.4	6.9	4.7	4.4	1.6	1.6
28	5.3	6.9	4.4	4.4	6.6	6.6	6.2	176	4.4	4.4	1.2	1.4
29	5.3	5.9	5.0	3.8	---	6.6	5.6	62	4.7	4.1	1.2	1.6
30	4.7	5.0	5.3	3.8	---	8.4	5.6	32	5.0	3.5	1.2	1.4
31	4.4	---	5.0	2.9	---	10	---	22	---	3.5	1.8	---
TOTAL	142.6	152.4	143.2	107.1	163.1	192.3	203.3	455.5	397.1	153.0	70.77	69.0
MEAN	4.60	5.08	4.62	3.45	5.83	6.20	6.78	14.7	13.2	4.94	2.28	2.30
MAX	9.6	8.4	6.9	5.3	9.6	10	8.8	176	40	11	4.4	6.2
MIN	2.9	3.5	3.5	1.6	3.2	5.0	4.4	4.7	4.4	3.5	.67	1.4
CFSM	.13	.15	.14	.10	.17	.18	.20	.43	.39	.14	.07	.07
IN.	.15	.17	.16	.12	.18	.21	.22	.49	.43	.17	.08	.07

CAL YR 1980 TOTAL 13204.60 MEAN 36.1 MAX 1120 MIN 2.9 CFSM 1.05 IN 14.32
WTR YR 1981 TOTAL 2249.37 MEAN 6.16 MAX 176 MIN .67 CFSM .18 IN 2.44

02019500 JAMES RIVER AT BUCHANAN, VA

LOCATION.--Lat 37°31'50", long 79°40'45", Botetourt County, Hydrologic Unit 02080201, on left bank at Chesapeake and Ohio Railway station at Buchanan, 300 ft (91 m) upstream from bridge on U.S. Highway 11, 1,000 ft (305 m) upstream from Purgatory Creek, 1.5 mi (2.4 km) downstream from Looney Creek, and at mile 306.4 (493.0 km).

DRAINAGE AREA.--2,075 mi² (5,374 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1898 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for August 1895 to Feb. 11, 1898, published in WSP 11, 15, and 27 are in error and should not be used. Gage-height records collected at this site since 1893 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 602: 1917-24. WSP 972: 1935-36. WSP 1303: 1898-1916, 1917-20(M), 1922(M), 1924(M). WSP 1383: 1927. WSP 2104: Drainage area. WDR VA-72-1: 1913(M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 802.90 ft (244.724 m) National Geodetic Vertical Datum of 1929. Prior to July 1, 1927, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of doubtful or no gage-height record, Nov. 19 to Jan. 7, which are fair. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 79.6 mi (128.1 km) upstream. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--83 years, 2,467 ft³/s (69.87 m³/s), 16.15 in/yr (410 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 115,000 ft³/s (3,260 m³/s) Mar. 27, 1913, gage height, 31 ft (9.4 m), from floodmarks; minimum, 202 ft³/s (5.72 m³/s) Sept. 8, 1966, gage height, 1.44 ft (0.439 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1877 reached a stage of 34.9 ft (10.64 m), from floodmark, discharge, about 142,000 ft³/s (4,000 m³/s), from rating curve extended above 110,000 ft³/s (3,100 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,700 ft³/s (869 m³/s) at 0815 hours May 29, gage height, 15.10 ft (4.602 m), no other peak above base of 21,000 ft³/s (590 m³/s); minimum, 230 ft³/s (6.51 m³/s) Jan. 11, 12, result of freezeup; minimum daily, 273 ft³/s (7.73 m³/s) Aug. 28, 31; minimum gage height, 1.66 ft (0.506 m) Aug. 28-31, Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	483	428	640	480	360	1220	1370	1120	5950	580	392	281
2	476	417	500	450	410	1120	1370	1100	8180	613	373	304
3	460	412	460	420	710	1040	1310	1040	12900	672	365	389
4	435	426	450	380	1010	957	1210	977	10000	804	369	485
5	424	440	440	300	751	967	1160	873	7780	904	369	559
6	418	442	430	320	702	1190	1120	832	5470	919	377	588
7	414	433	420	350	681	1440	1070	818	5120	1130	395	545
8	406	428	430	396	652	1320	994	766	5630	1380	452	479
9	396	428	440	433	565	1190	965	760	4050	1120	429	451
10	391	433	500	433	536	1080	943	737	3280	945	397	398
11	385	421	470	360	807	997	914	682	2870	875	382	369
12	364	41[illegible]	460	340	3120	939	873	811	2430	790	379	352
13	351	410	450	350	2480	882	887	910	2750	749	362	336
14	344	410	440	404	1530	833	910	973	2760	702	350	321
15	346	413	460	414	1290	787	944	1010	2180	599	345	319
16	350	429	440	406	1070	756	970	1080	1570	542	348	342
17	350	468	430	371	967	720	1040	1080	1100	513	344	347
18	366	710	460	413	915	704	1480	1050	928	507	333	361
19	420	850	450	377	937	698	2050	1100	855	505	321	348
20	396	700	440	392	1080	694	1850	3670	874	496	305	336
21	380	620	420	402	1600	664	2390	7270	944	489	299	320
22	387	600	400	416	1810	640	2390	5530	945	450	294	312
23	377	640	410	419	1590	663	2180	3620	873	441	287	304
24	365	800	500	416	2090	687	1950	2560	810	428	282	295
25	441	1100	440	406	2650	699	1940	2050	761	465	279	289
26	550	850	370	408	1990	768	1800	1740	686	452	278	287
27	514	750	410	407	1610	895	1660	1510	631	432	276	289
28	586	700	400	405	1370	946	1500	11600	599	434	273	282
29	503	680	450	408	---	961	1310	25400	567	437	275	274
30	463	660	520	405	---	988	1170	11200	555	418	274	274
31	442	---	500	384	---	1140	---	7470	---	391	273	---
TOTAL	12983	16911	14030	12265	35283	28585	41720	101339	94048	20182	10477	10836
MEAN	419	564	453	396	1260	922	1391	3269	3135	651	338	361
MAX	586	1100	640	480	3120	1440	2390	25400	12900	1380	452	588
MIN	344	410	370	300	360	640	873	682	555	391	273	274
(*)	+3	+44	+35	-2	+313	+140	+145	+251	-166	+3	-13	+10
(‡)	422	608	488	394	1573	1062	1536	3520	2969	654	325	371

CAL YR 1980 TOTAL 866272 MEAN 2367 MAX 36200 MIN 344 MEAN‡ 2420 CFSM‡ 1.17 IN‡ 15.88
WTR YR 1981 TOTAL 398659 MEAN 1092 MAX 25400 MIN 273 MEAN‡ 1154 CFSM‡ .56 IN‡ 7.55

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02019500 JAMES RIVER AT BUCHANAN, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1951-56, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1952 to September 1956, April 1968 to current year.
WATER TEMPERATURES: October 1947 to September 1948, May 1951 to September 1956, April 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: May 1951 to September 1956.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 945 micromhos Sept. 27, 1954; minimum daily, 67 micromhos Oct. 20, 1975, Oct. 10, 1976.
WATER TEMPERATURES: Maximum daily, 31.0°C July 5, 1955, July 17, 21, 1980; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 688 micromhos Sept. 1; minimum daily, 90 micromhos May 29.
WATER TEMPERATURES: Maximum daily, 29.0°C June 25, July 11, 20-22; minimum daily, 0.0°C Dec. 25, Jan. 11, 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT												
09...	0900	398	416	7.4	13.0	10	9.2	150	37	46	7.8	20
NOV												
19...	1325	880	528	7.9	7.0	30	11.4	170	71	57	7.0	22
JAN												
07...	0930	539	540	7.3	.0	35	10.6	180	76	58	7.6	31
FEB												
19...	1030	930	318	7.3	7.0	20	10.4	110	48	34	5.0	15
APR												
01...	0945	1370	295	7.4	13.0	20	7.9	110	45	34	5.2	11
MAY												
13...	1015	922	340	8.1	16.0	20	--	110	39	36	4.9	15
JUL												
22...	1315	448	451	8.3	28.0	20	7.9	160	70	53	6.9	23

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)
OCT												
09...	3.6	110	40	37	.1	4.7	260	227	.010	.34	.260	120
NOV												
19...	3.5	100	40	68	.1	2.9	324	261	.020	--	.460	30
JAN												
07...	3.8	100	54	62	.1	2.0	311	279	.020	.20	.630	50
FEB												
19...	2.6	58	35	31	<.1	4.0	175	162	<.010	.34	.200	60
APR												
01...	2.0	61	25	27	.1	.4	160	141	<.010	.04	.240	40
MAY												
13...	2.3	71	28	37	.2	3.0	219	169	<.010	.26	.290	70
JUL												
22...	3.2	91	33	64	.1	4.9	302	243	<.010	.20	.370	20

< Actual value is known to be less than the value shown.

02019500 JAMES RIVER AT BUCHANAN, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	432	432	343	330	540	285	270	240	150	425	---	688
2	456	476	345	440	520	240	265	243	157	410	528	644
3	438	510	340	495	523	260	255	265	110	435	520	673
4	452	499	380	540	500	255	258	290	120	450	537	559
5	489	530	375	463	420	238	253	290	125	415	520	589
6	458	520	385	465	400	305	275	300	135	375	480	446
7	477	541	393	525	390	355	286	305	161	350	520	535
8	447	543	420	520	320	260	280	325	139	340	500	535
9	416	580	340	545	323	200	261	340	160	300	523	471
10	494	549	380	550	360	220	280	325	170	---	530	485
11	497	491	425	580	365	240	301	340	182	265	555	475
12	538	561	463	540	340	260	301	300	190	317	525	490
13	505	519	500	520	210	---	315	338	---	328	500	505
14	538	530	445	495	200	317	300	360	190	328	478	470
15	541	525	460	525	190	265	310	320	200	380	530	322
16	560	523	437	520	220	285	362	315	200	385	575	431
17	530	460	445	605	223	350	310	298	210	---	600	505
18	541	515	453	575	255	338	320	300	200	380	600	594
19	564	495	445	500	320	365	320	295	275	345	554	545
20	562	470	500	540	320	370	196	300	285	375	564	593
21	536	415	480	510	320	358	200	153	318	407	574	614
22	541	363	480	503	290	385	190	150	360	450	569	594
23	520	400	485	500	240	360	195	158	385	438	571	535
24	520	360	505	580	195	375	178	180	275	440	554	530
25	498	423	540	525	190	378	195	193	345	460	571	584
26	537	363	538	520	195	380	200	200	380	460	589	515
27	515	310	540	540	190	364	220	220	380	440	584	520
28	684	278	583	520	200	361	240	158	317	470	624	604
29	538	290	523	485	---	359	243	90	390	470	673	614
30	496	323	498	525	---	318	220	148	390	495	663	624
31	458	---	345	555	---	283	---	145	---	528	668	---
MEAN	509	458	446	518	313	311	260	254	238	402	559	543

WTR YR 1981 MEAN 402 MAX 688 MIN 90

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.0	12.5	6.5	3.0	1.0	7.0	15.0	17.5	16.0	23.5	---	26.5
2	19.5	12.0	7.0	3.5	3.0	6.5	15.5	17.0	17.0	22.0	26.5	25.5
3	19.5	11.5	6.0	2.5	1.0	8.5	16.0	17.0	18.0	22.0	27.0	26.5
4	16.0	11.5	5.5	1.0	1.0	8.5	16.5	18.0	19.0	24.0	27.5	23.5
5	16.0	10.5	6.0	1.0	1.5	9.0	16.0	19.0	20.0	24.0	28.0	24.0
6	17.0	10.5	7.0	1.0	2.5	7.0	14.5	19.0	19.0	24.5	27.0	24.5
7	16.5	10.5	8.0	1.0	2.0	7.0	14.5	19.5	19.5	26.0	28.0	24.5
8	16.5	12.5	8.0	1.0	3.0	7.5	16.5	19.5	20.0	27.0	27.5	23.5
9	16.0	13.0	9.0	1.0	3.0	7.0	14.5	19.0	21.0	27.5	28.0	23.0
10	18.5	12.0	8.5	1.5	1.5	6.5	15.0	18.0	22.0	---	28.5	24.0
11	18.0	9.0	7.5	.0	4.0	6.5	16.5	20.5	23.0	29.0	28.5	24.0
12	15.5	9.5	7.0	.0	1.5	8.0	18.0	19.0	23.5	28.0	28.0	24.5
13	16.0	9.5	7.0	1.0	2.5	---	16.0	19.5	---	28.0	27.0	25.0
14	15.5	9.0	6.0	1.5	3.0	8.0	16.5	20.0	23.0	28.5	27.0	25.0
15	16.0	9.0	5.0	1.0	4.0	9.0	17.0	20.0	24.5	28.0	27.5	24.0
16	17.0	9.0	5.5	1.0	5.0	9.5	16.0	20.0	26.0	27.5	27.5	23.5
17	16.5	7.5	5.0	1.0	5.5	8.5	15.5	20.0	27.0	---	25.0	23.0
18	17.0	8.0	5.0	1.5	7.5	8.0	17.0	17.5	26.0	28.0	25.5	21.5
19	16.5	7.0	5.0	2.5	8.0	7.0	18.0	16.0	27.0	27.5	23.0	19.5
20	16.0	6.5	3.0	1.0	9.0	6.5	17.5	14.5	26.0	29.0	24.0	19.5
21	16.5	6.0	2.0	1.0	10.0	7.5	16.0	14.5	26.5	29.0	24.0	21.0
22	15.5	6.5	1.0	3.0	9.5	5.0	15.5	15.0	28.0	29.0	24.0	22.5
23	13.0	5.5	1.5	2.5	9.5	7.0	18.0	16.5	27.5	28.0	25.0	20.5
24	13.0	6.0	2.0	3.0	8.0	9.0	14.0	19.0	28.0	26.0	25.0	20.0
25	12.0	7.0	.0	4.0	8.5	10.0	13.5	20.5	29.0	26.0	26.0	19.5
26	11.5	6.5	.5	4.0	8.0	10.5	14.5	22.0	27.0	27.0	25.5	20.0
27	11.0	5.5	1.0	4.5	8.0	10.5	16.5	21.0	26.0	28.5	26.0	20.5
28	12.0	5.5	1.0	5.5	9.0	11.5	19.0	17.5	26.0	28.5	25.5	21.0
29	11.5	5.0	1.5	5.0	---	12.5	18.5	16.5	25.5	28.0	24.0	20.0
30	11.0	6.0	2.0	3.0	---	13.0	18.5	18.0	24.0	27.0	25.5	20.5
31	12.5	---	2.0	4.0	---	10.5	---	18.0	---	27.0	26.5	---
MEAN	15.5	8.5	4.5	2.0	5.0	8.5	16.0	18.5	23.5	27.0	26.5	22.5

WTR YR 1981 MEAN 15.0 MAX 29.0 MIN .0

02020500 CALFPASTURE RIVER ABOVE MILL CREEK, AT GOSHEN, VA

LOCATION.--Lat 37°59'16", long 79°29'38", Rockbridge County, Hydrologic Unit 02080202, on left bank 20 ft (6 m) upstream from bridge on State Highway 42 at Goshen and 400 ft (122 m) upstream from Mill Creek.

DRAINAGE AREA.--144 mi² (373 km²).

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,384.84 ft (422.099 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--43 years, 160 ft³/s (4.531 m³/s), 15.09 in/yr (383 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,900 ft³/s (592 m³/s) Oct. 6, 1972, gage height, 12.78 ft (3.895 m), from rating curve extended above 9,200 ft³/s (260 m³/s) on basis of slope-area measurement of peak flow; no flow Sept. 5, 6, 1957, Sept. 28, 1959, result of diversion.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,530 ft³/s (43.3 m³/s) May 20, gage height, 5.01 ft (1.527 m), no peak above base of 2,500 ft³/s (71 m³/s); minimum, 2.4 ft³/s (0.068 m³/s) Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.4	7.0	40	12	5.6	114	71	69	219	21	8.5	14
2	6.2	7.0	37	10	49	99	86	62	664	34	7.8	9.4
3	6.2	7.0	36	6.4	58	86	86	55	640	58	7.4	9.8
4	6.0	7.4	33	6.0	32	79	81	51	1190	161	7.3	17
5	5.7	8.2	30	6.4	32	81	86	46	877	310	8.0	25
6	6.0	8.2	28	8.2	30	74	102	44	508	355	10	19
7	5.7	7.8	27	11	25	69	120	43	388	405	12	18
8	5.7	7.6	26	8.0	23	63	120	40	295	264	11	14
9	5.5	7.4	25	7.8	18	58	111	36	232	154	10	12
10	5.5	7.6	25	7.4	24	55	99	34	210	117	9.0	11
11	5.5	7.5	23	7.0	490	51	86	42	181	92	8.0	9.4
12	5.2	7.2	21	6.6	490	49	76	79	136	65	7.0	8.4
13	5.0	7.2	20	6.6	260	46	74	108	111	52	6.0	7.8
14	5.0	7.2	19	6.6	155	44	69	102	94	43	6.0	7.5
15	5.3	7.4	18	6.6	120	42	63	108	79	36	6.0	7.8
16	5.3	8.1	17	6.8	94	41	58	105	63	30	5.0	10
17	5.5	11	17	7.2	81	39	60	94	53	28	4.5	9.8
18	5.7	26	16	7.2	71	39	62	89	45	25	4.0	8.7
19	6.0	22	16	8.0	71	39	57	472	40	20	3.9	8.4
20	5.3	18	15	8.2	168	37	62	1310	40	18	3.8	8.1
21	5.2	15	12	9.0	310	35	69	718	38	17	3.6	7.8
22	5.3	13	13	9.3	273	34	74	410	44	15	3.5	6.9
23	5.7	12	14	9.3	250	35	81	273	43	13	3.4	6.3
24	6.2	29	14	8.6	410	33	105	197	26	11	3.3	5.8
25	10	74	10	8.6	320	31	114	146	24	11	3.4	5.6
26	10	60	10	9.0	223	30	105	117	21	12	3.0	6.6
27	8.6	51	12	9.0	164	30	94	99	18	11	3.1	5.0
28	7.7	51	12	8.0	132	30	84	246	15	12	3.2	4.6
29	7.2	47	12	6.8	---	30	74	514	13	13	3.0	4.2
30	7.2	44	12	5.5	---	37	71	366	13	12	3.1	4.2
31	7.2	---	12	5.3	---	48	---	259	---	10	3.7	---
TOTAL	193.0	592.8	622	242.4	4378.6	1578	2500	6334	6320	2425	181.5	292.1
MEAN	6.23	19.8	20.1	7.82	156	50.9	83.3	204	211	78.2	5.85	9.74
MAX	10	74	40	12	490	114	120	1310	1190	405	12	25
MIN	5.0	7.0	10	5.3	5.6	30	57	34	13	10	3.0	4.2
CFSM	.04	.14	.14	.05	1.08	.35	.58	1.42	1.47	.54	.04	.07
IN.	.05	.15	.16	.06	1.13	.41	.65	1.64	1.63	.63	.05	.08

CAL YR 1980 TOTAL 54349.6 MEAN 148 MAX 2550 MIN 3.9 CFSM 1.03 IN 14.04
WTR YR 1981 TOTAL 25659.4 MEAN 70.3 MAX 1310 MIN 3.0 CFSM .49 IN 6.63

02021500 MAURY RIVER AT ROCKBRIDGE BATHS, VA

LOCATION.--Lat 37°54'26", long 79°25'20", Rockbridge County, Hydrologic Unit 02080202, on right bank at Rockbridge Baths, 1,200 ft (370 m) upstream from bridge on State Highway 39, and 1.0 mi (1.6 km) upstream from Hays Creek.

DRAINAGE AREA.--329 mi² (852 km²).

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River at Rockbridge Baths.

REVISED RECORDS.--WSP 972: 1929-40, 1941(M). WSP 1002: 1930(m). WSP 1553: 1931(m).

GAGE.--Water-stage recorder. Datum of gage is 1,100.33 ft (335.381 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 369 ft³/s (10.45 m³/s), 15.23 in/yr (387 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft³/s (935 m³/s) Mar. 17, 1936, gage height, 13.07 ft (3.984 m), from rating curve extended above 16,000 ft³/s (450 m³/s); minimum, 5.8 ft³/s (0.16 m³/s) Sept. 10, 1966, gage height, 0.79 ft (0.241 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,190 ft³/s (90.3 m³/s) June 4, gage height, 5.52 ft (1.682 m), no peak above base of 4,500 ft³/s (130 m³/s); minimum, 8.5 ft³/s (0.24 m³/s) Jan. 18, gage height, 0.86 ft (0.262 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	49	80	41	26	234	150	124	592	47	33	66
2	37	41	74	38	136	201	197	119	1560	77	32	56
3	37	37	72	34	214	175	184	107	1810	115	31	57
4	36	35	66	32	138	157	172	98	2590	215	30	72
5	36	35	62	36	110	188	179	91	2080	540	29	283
6	36	34	60	39	94	196	202	87	1220	580	32	166
7	39	36	57	38	78	171	201	87	947	672	51	129
8	60	40	55	28	76	151	190	81	627	459	43	105
9	64	33	55	33	56	139	172	76	497	283	36	79
10	77	32	57	32	63	130	161	73	413	180	33	60
11	69	30	52	25	1150	123	143	91	373	157	30	49
12	53	28	50	26	996	115	133	128	275	124	30	43
13	46	28	49	28	520	108	132	160	217	100	27	39
14	47	28	46	30	363	103	123	153	183	86	27	35
15	54	30	45	31	243	94	120	162	151	74	27	35
16	67	35	44	31	193	93	109	172	125	65	28	42
17	63	44	44	27	168	85	115	149	106	61	26	43
18	79	128	43	27	158	86	138	140	90	57	24	37
19	64	95	42	31	159	88	129	467	81	52	24	33
20	62	66	40	30	371	83	136	1770	96	47	23	30
21	76	53	35	35	631	79	145	1180	87	43	22	29
22	69	47	37	36	528	76	146	664	81	40	22	27
23	69	44	40	35	530	82	154	441	71	38	22	26
24	78	123	41	33	861	81	185	334	61	38	22	25
25	98	219	46	32	657	76	193	261	56	40	21	24
26	83	138	46	33	459	71	178	206	52	40	21	24
27	69	109	42	34	338	69	161	178	48	39	20	27
28	69	119	38	35	272	69	146	1040	44	37	20	24
29	60	108	39	32	---	67	134	1360	41	34	19	22
30	69	91	41	31	---	88	125	915	41	39	20	22
31	63	---	38	29	---	142	---	725	---	35	21	---
TOTAL	1866	1935	1536	1001	9588	3620	4653	11639	14615	4414	846	1709
MEAN	60.2	64.5	49.5	32.3	342	117	155	375	487	142	27.3	57.0
MAX	98	219	80	41	1150	234	202	1770	2590	672	51	283
MIN	36	28	35	25	26	67	109	73	41	34	19	22
CFSM	.18	.20	.15	.10	1.04	.36	.47	1.14	1.48	.43	.08	.17
IN.	.21	.22	.17	.11	1.08	.41	.53	1.32	1.65	.50	.10	.19

CAL YR 1980 TOTAL 143830 MEAN 393 MAX 5420 MIN 28 CFSM 1.20 IN 16.26
WTR YR 1981 TOTAL 57422 MEAN 157 MAX 2590 MIN 19 CFSM .48 IN 6.49

02022500 KERRS CREEK NEAR LEXINGTON, VA

LOCATION.--Lat 37°49'32", long 79°26'36", Rockbridge County, Hydrologic Unit 02080202, on right bank 100 ft (30 m) upstream from bridge on Interstate Highway 64, 1.4 mi (2.3 km) upstream from mouth, and 2.9 mi (4.7 km) north of Lexington.

DRAINAGE AREA.--35.0 mi² (90.6 km²).

PERIOD OF RECORD.--October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1203: 1927-29, 1930-34(M), 1935-40, 1941(M), 1942, 1943-48(M), 1949. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 980.32 ft (298.802 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Jan. 27, 1927, to Sept. 30, 1953, nonrecording gage at site 1,000 ft (305 m) downstream at different datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--55 years, 35.4 ft³/s (1.003 m³/s), 13.74 in/yr (349 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft³/s (651 m³/s) Sept. 10, 1950, gage height, 13.8 ft (4.21 m), from floodmarks, site and datum then in use, from rating curve extended above 800 ft³/s (23 m³/s) on basis of contracted-opening and slope-area measurements of peak flow; minimum, 0.90 ft³/s (0.025 m³/s) July 22, 1966 (result of temporary dam upstream); minimum daily, 4.0 ft³/s (0.11 m³/s) many days in August and September 1932, Nov. 21, 1938, July 22, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 345 ft³/s (9.77 m³/s) Feb. 11, gage height, 4.40 ft (1.341 m), no peak above base of 600 ft³/s (17 m³/s); minimum, 3.8 ft³/s (0.11 m³/s) Jan. 31, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.8	12	17	9.3	7.2	23	16	12	35	11	6.1	6.4
2	9.5	12	16	8.2	42	20	15	11	86	12	5.9	12
3	9.5	12	16	7.0	19	19	14	11	80	18	6.1	18
4	9.3	12	14	6.1	15	18	13	11	56	17	6.1	23
5	9.3	12	13	6.6	13	22	15	10	43	12	6.0	16
6	9.3	12	13	7.2	12	20	14	11	37	18	9.0	10
7	8.8	12	12	7.8	11	18	13	10	36	13	9.0	8.8
8	8.5	12	12	7.6	11	17	13	9.4	28	10	7.8	8.3
9	8.5	12	13	7.2	9.0	16	13	9.2	25	9.5	6.9	7.7
10	8.2	12	13	6.6	9.4	16	13	9.8	22	9.2	6.3	7.1
11	8.2	12	12	6.0	171	15	12	13	20	8.9	6.1	6.8
12	8.2	12	11	6.0	55	15	12	11	18	8.4	6.3	6.6
13	8.2	12	11	6.3	37	14	18	9.8	17	8.1	6.1	6.3
14	8.0	12	11	7.2	24	13	15	9.4	16	7.9	5.9	6.2
15	8.5	12	11	8.4	19	13	15	13	14	7.3	5.8	6.3
16	8.5	12	11	8.2	17	13	14	10	13	8.8	5.8	8.1
17	8.8	14	10	7.7	17	12	19	9.6	12	8.6	5.6	6.9
18	11	23	10	7.7	17	12	24	10	11	7.7	5.1	6.2
19	12	15	10	7.7	19	12	21	16	11	7.3	5.1	6.0
20	11	14	8.8	8.0	50	12	26	20	13	7.3	5.2	5.6
21	12	12	8.2	9.3	39	11	25	17	12	6.9	5.1	5.6
22	12	11	8.9	9.1	31	11	23	15	12	6.6	5.1	5.6
23	12	11	9.6	8.8	48	12	21	13	10	6.4	5.0	5.2
24	12	54	10	8.2	53	12	21	12	9.6	7.1	5.0	5.0
25	17	36	8.8	8.0	39	11	18	11	9.6	8.0	5.0	5.0
26	14	23	8.0	8.2	32	11	16	11	8.9	7.5	4.9	5.2
27	13	22	9.1	8.6	27	11	15	12	8.3	8.7	5.0	5.2
28	12	25	9.4	8.3	25	11	14	92	8.0	7.7	5.0	4.8
29	12	21	10	7.7	---	10	13	61	7.8	7.0	4.9	4.8
30	12	18	9.8	7.4	---	14	13	42	8.8	6.4	5.0	4.8
31	12	---	9.3	7.0	---	17	---	41	---	6.2	5.1	---
TOTAL	323.1	491	345.9	237.4	868.6	451	494	553.2	688.0	288.5	181.3	233.5
MEAN	10.4	16.4	11.2	7.66	31.0	14.5	16.5	17.8	22.9	9.31	5.85	7.78
MAX	17	54	17	9.3	171	23	26	92	86	18	9.0	23
MIN	8.0	11	8.0	6.0	7.2	10	12	9.2	7.8	6.2	4.9	4.8
CFSM	.30	.47	.32	.22	.89	.41	.47	.51	.65	.27	.17	.22
IN.	.34	.52	.37	.25	.92	.48	.53	.59	.73	.31	.19	.25

CAL YR 1980 TOTAL 15400.2 MEAN 42.1 MAX 1030 MIN 6.8 CFSM 1.20 IN 16.37
WTR YR 1981 TOTAL 5155.5 MEAN 14.1 MAX 171 MIN 4.8 CFSM .40 IN 5.48

02024000 MAURY RIVER NEAR BUENA VISTA, VA

LOCATION.--Lat 37°45'45", long 79°23'30", Rockbridge County, Hydrologic Unit 02080202, on right bank 0.5 mi (0.8 km) downstream from South River and 2.8 mi (4.5 km) northwest of Buena Vista.

DRAINAGE AREA.--646 mi^2 (1,673 km^2).

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1945, published as North River near Buena Vista.

REVISED RECORDS.--WSP 952: 1940-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 846.58 ft (258.038 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Since 1966, some regulation at times by Lake Merriweather on Little Calfpasture River. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 653 ft^3/s (18.49 m^3/s), 13.73 in/yr (349 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft^3/s (2,970 m^3/s) Aug. 20, 1969, gage height, 31.23 ft (9.159 m), from floodmarks, from rating curve extended above 17,000 ft^3/s (480 m^3/s) on basis of slope-area measurement of peak flow; minimum, 20 ft^3/s (0.57 m^3/s) Oct. 10, 1941, occurred during filling of a small reservoir 2 mi (3 km) upstream; unqualified minimum, 37 ft^3/s (1.05 m^3/s) Sept. 9, 1966; minimum gage height, 0.98 ft (0.299 m) Jan. 5, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Mar. 18, 1936, reached a stage of about 22 ft (6.7 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,330 ft^3/s (94.3 m^3/s) June 4, gage height, 5.66 ft (1.725 m), no peak above base of 6,200 ft^3/s (180 m^3/s); minimum, 54 ft^3/s (1.53 m^3/s) Aug. 31; minimum gage height, 0.98 ft (0.299 m) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	137	215	118	81	421	281	226	766	109	104	446
2	120	128	198	118	309	376	301	222	1370	159	100	229
3	120	122	195	110	439	341	297	205	2010	268	99	205
4	118	120	182	102	305	313	285	195	2590	333	99	285
5	118	120	173	113	266	337	293	182	2360	599	93	496
6	118	120	170	126	233	358	321	179	1490	845	111	395
7	120	120	163	113	202	325	329	182	1160	955	150	565
8	140	130	157	92	185	297	317	170	813	711	184	350
9	145	120	160	105	173	277	305	160	654	496	139	266
10	155	120	166	100	148	266	297	157	536	361	117	209
11	155	116	157	80	1560	255	269	177	506	550	108	172
12	135	112	148	83	1660	244	255	202	408	375	106	148
13	130	110	143	89	894	233	273	229	346	297	103	131
14	125	110	140	95	616	222	258	244	303	254	96	119
15	135	113	134	95	463	212	251	263	269	221	94	113
16	150	118	134	98	384	205	236	274	232	199	93	141
17	150	143	131	84	333	198	244	248	205	190	90	156
18	160	305	129	84	313	189	277	231	184	172	85	132
19	150	281	129	98	313	195	273	276	169	163	79	114
20	145	208	123	95	553	189	281	1490	185	151	79	103
21	155	173	105	105	894	179	289	1400	193	144	77	97
22	150	154	110	110	813	176	281	829	182	132	74	92
23	150	143	121	108	723	185	281	571	158	124	70	86
24	160	222	126	102	1100	185	293	446	142	122	68	81
25	180	439	140	100	979	179	313	369	130	130	67	78
26	165	329	140	100	729	166	301	314	131	130	61	77
27	155	266	126	102	568	160	281	286	117	135	61	77
28	150	277	118	105	477	157	262	801	107	125	60	78
29	145	269	118	100	---	154	244	1500	101	137	57	71
30	150	236	123	95	---	179	233	1120	99	116	58	70
31	145	---	123	88	---	255	---	910	---	114	57	---
TOTAL	4414	5361	4497	3113	15713	7428	8421	14058	17916	8817	2839	5582
MEAN	142	179	145	100	561	240	281	453	597	284	91.6	186
MAX	180	439	215	126	1660	421	329	1500	2590	955	184	565
MIN	118	110	105	80	81	154	233	157	99	109	57	70
CFSM	.22	.28	.22	.16	.87	.37	.44	.70	.92	.44	.14	.29
IN.	.25	.31	.26	.18	.90	.43	.48	.81	1.03	.51	.16	.32

CAL YR 1980 TOTAL 251373 MEAN 687 MAX 7610 MIN 91 CFSM 1.06 IN 14.48
WTR YR 1981 TOTAL 98159 MEAN 269 MAX 2590 MIN 57 CFSM .42 IN 5.65

02025500 JAMES RIVER AT HOLCOMBS ROCK, VA

LOCATION.--Lat 37°30'04", long 79°15'46", Bedford County, Hydrologic Unit 02080203, on right bank at Holcombs Rock, 0.9 mi (1.4 km) downstream from Pedlar River, and at mile 268.6 (432.2 km).

DRAINAGE AREA.--3,259 mi^2 (8,441 km^2).

PERIOD OF RECORD.--January 1900 to September 1915 (gage heights only), October 1926 to current year. Monthly discharge only for some periods, published in WSP 1303. Published as "at Salt Creek" December 1926 to June 1931.

REVISED RECORDS.--WSP 972: 1913(M), 1932-33, 1935(M), 1936. WSP 1303: 1928(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 548.53 ft (167.192 m) National Geodetic Vertical Datum of 1929. January 1900 to September 1915, nonrecording gage in powerhouse of Owens Illinois Glass Company 1,000 ft (305 m) upstream at different datum. December 1926 to June 1931, water-stage recorder at site 2 mi (3.2 km) downstream at different datum.

REMARKS.--Records good. Some diurnal fluctuation caused by powerplants above station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 117.5 mi (189 km) upstream. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--55 years, 3,576 ft^3/s (101.3 m^3/s), 14.90 in/yr (378 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 150,000 ft^3/s (4,250 m^3/s) Aug. 20, 1969, gage height, 35.50 ft (10.820 m), from rating curve extended above 73,000 ft^3/s (2,100 m^3/s) on basis of records for other stations in James River basin; minimum, 71 ft^3/s (2.01 m^3/s) Oct. 24, 1963; minimum daily, 223 ft^3/s (6.32 m^3/s) July 28, 1930; minimum gage height, 2.91 ft (0.887 m) Oct. 5, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1913 reached a stage of 31.3 ft (9.54 m), from floodmarks, discharge, 118,000 ft^3/s (3,340 m^3/s), from rating curve extended as explained above.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,800 ft^3/s (844 m^3/s) May 29, gage height, 15.70 ft (4.785 m); minimum, 114 ft^3/s (3.23 m^3/s) Aug. 28, gage height, 3.13 ft (0.954 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	876	810	1390	843	679	2180	1830	1440	7250	689	664	414
2	902	817	977	838	692	1810	2130	1540	8300	928	656	837
3	851	813	1340	851	1350	1940	2090	1520	15500	1270	652	941
4	767	755	1080	826	1460	1700	2020	1610	13800	1750	649	1430
5	679	750	942	731	1150	1490	1610	1380	12000	1660	636	1480
6	695	826	896	558	1170	1780	1980	1110	8040	2490	551	1240
7	925	826	899	507	1210	1880	1690	1200	6470	1970	638	1690
8	885	741	950	618	1150	2010	1720	1290	6920	2350	762	1300
9	817	617	1060	675	1110	1940	1500	1130	5290	2190	827	668
10	704	677	1030	743	1090	1630	1600	1130	4260	1680	883	655
11	690	834	967	737	1950	1700	1510	1110	3710	1690	1030	620
12	689	832	947	682	4220	1770	1460	1030	3400	1570	906	600
13	711	761	933	649	4630	1260	1650	1150	2980	1370	717	560
14	824	636	915	628	2800	1090	1470	1560	3330	1240	562	540
15	713	687	894	681	2300	1280	1490	1410	3050	1110	528	580
16	648	769	807	755	2070	1240	1480	1380	2290	1050	528	620
17	648	702	776	745	1690	1280	1520	1550	1850	1010	528	659
18	652	774	790	704	1540	1190	1780	1820	1440	918	538	726
19	666	1630	842	688	1550	1110	2520	1450	1140	908	554	654
20	762	1300	870	701	2080	1130	2570	2800	1520	904	554	509
21	891	1280	856	721	2510	1130	2720	8440	1320	838	555	552
22	800	1040	835	759	3060	1120	3030	6780	1510	700	547	735
23	731	1020	765	792	2850	1110	2880	4920	1140	716	541	571
24	729	959	682	935	3040	1050	2620	3440	1160	758	535	454
25	707	1400	670	926	4030	1130	2510	2750	1140	802	524	468
26	697	1970	688	870	3390	1170	2460	2450	1080	770	529	478
27	1200	1990	691	691	2750	1170	2490	2150	957	810	463	503
28	947	1590	693	519	2370	1330	1940	7010	940	1020	244	506
29	942	1130	710	657	---	1370	1990	26200	876	832	363	487
30	972	1560	833	851	---	1720	1860	14600	825	685	399	480
31	860	---	849	758	---	1910	---	9230	---	661	393	---
TOTAL	24580	30496	27577	22639	59891	45620	60120	116580	123488	37339	18456	21957
MEAN	793	1017	890	730	2139	1472	2004	3761	4116	1204	595	732
MAX	1200	1990	1390	935	4630	2180	3030	26200	15500	2490	1030	1690
MIN	648	617	670	507	679	1050	1460	1030	825	661	244	414
(*)	+3	+44	+35	-2	+313	+140	+145	+251	-166	+3	-13	+10
MEAN‡	796	1061	925	728	2452	1612	2149	4012	3950	1207	582	742
CFSM‡	.24	.33	.28	.22	.75	.49	.66	1.23	1.21	.37	.18	.23
IN‡	.28	.37	.32	.25	.78	.56	.74	1.42	1.35	.43	.21	.26

CAL YR 1980 TOTAL 1344678 MEAN 3674 MAX 50400 MIN 563 MEAN‡ 3727 CFSM‡ 1.14 IN‡ 15.52
WTR YR 1981 TOTAL 588743 MEAN 1613 MAX 26200 MIN 244 MEAN‡ 1675 CFSM‡ .51 IN‡ 6.92

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.

‡ Adjusted for change in contents.

02026000 JAMES RIVER AT BENT CREEK, VA

LOCATION.--Lat 37°32'10", long 78°49'30", Nelson County, Hydrologic Unit 02080203, on left bank at town of Bent Creek, 150 ft (46 m) downstream from Bent Creek, 525 ft (160 m) upstream from bridge on U.S. Highway 60, 1.3 mi (2.1 km) southeast of Gladstone, and at mile 227.8 (366.5 km).

DRAINAGE AREA.--3,683 mi^2 (9,539 km^2).

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to 1926, published as "at Bent Creek, near Gladstone."

REVISED RECORDS.--WSP 742: 1931(m). WSP 972: 1935-36. WSP 1066: 1940. WSP 1203: 1942. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 381.39 ft (116.248 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 12, 1930, nonrecording gage at same site and datum.

REMARKS.--Records good. Large diurnal fluctuation caused by powerplants above station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 158.3 mi (254.7 km) upstream. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 4,177 ft^3/s (118.3 m^3/s), 15.40 in/yr (391 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 176,000 ft^3/s (4,980 m^3/s) June 21, 1972, gage height, 27.13 ft (8.269 m), from high-water mark in gage house, from rating curve extended above 89,000 ft^3/s (2,500 m^3/s) on basis of velocity-area studies and records for other stations in James River basin; minimum, 222 ft^3/s (6.29 m^3/s) Oct. 13, 14, 1930, gage height, 2.21 ft (0.674 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 27,800 ft^3/s (787 m^3/s) at 2200 hours May 29, gage height, 10.72 ft (3.267 m), no other peak above base of 26,500 ft^3/s (750 m^3/s); minimum, 382 ft^3/s (10.8 m^3/s) Aug. 30, gage height, 2.45 ft (0.747 m); minimum daily, 467 ft^3/s (13.2 m^3/s) Aug. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1090	933	1900	810	616	2370	2560	1920	8850	732	1000	539
2	747	681	1780	823	951	2670	1930	1340	8410	662	627	518
3	1100	917	771	1290	894	1510	2510	1380	14100	1470	620	884
4	738	826	1260	600	2120	2420	2050	1610	15000	2360	634	1090
5	851	920	1170	820	1230	1670	2040	1690	14400	1880	646	2270
6	843	838	1300	969	1060	1700	2410	1320	10400	2930	653	1630
7	693	901	650	756	1200	1810	2300	993	8190	3060	819	2090
8	899	867	917	776	1240	2270	1600	1180	8000	2110	1270	1880
9	859	803	1090	700	1220	2300	1930	1130	7050	2290	1120	1640
10	807	643	1140	720	1110	2300	1510	1110	5770	2440	1060	977
11	810	679	1340	900	1770	1370	1620	1340	4330	1800	773	973
12	657	1100	941	1120	4700	2040	1360	1290	4260	1620	1190	1030
13	740	705	1020	1050	5720	1840	1830	892	3450	1590	1110	859
14	739	916	968	1170	4260	1040	2100	1050	3240	1340	715	623
15	848	659	1000	841	2680	1150	1340	1610	3900	1260	700	777
16	720	667	1020	721	2440	1490	1600	1290	3080	1040	693	715
17	642	956	628	828	2020	1410	1350	1340	1900	1210	690	994
18	753	1000	1020	1080	1600	1240	1550	1780	1590	1420	615	734
19	677	949	668	756	1660	1320	2250	2060	1240	626	618	857
20	790	2030	1170	747	3460	1140	3070	1300	1360	782	651	612
21	879	1240	995	759	2900	1170	2790	6760	1240	1190	588	874
22	957	1360	735	856	3570	1210	3560	8600	1290	732	609	593
23	811	1120	785	875	3580	1320	3290	6660	1750	625	588	585
24	809	1100	888	766	3370	1370	3410	4520	1080	946	650	580
25	839	1300	655	964	4310	1140	2540	3300	951	1410	522	545
26	888	1780	742	889	4730	1350	2800	2800	1060	1060	524	491
27	795	2490	687	857	3460	1180	2620	2420	996	793	527	532
28	1220	2290	786	911	2720	1290	2740	2620	788	1090	513	573
29	1200	1730	629	653	---	1430	1870	20700	827	953	483	572
30	777	1260	903	627	---	1540	1940	18800	956	1030	467	623
31	1130	---	1040	952	---	2340	---	11600	---	643	815	---
TOTAL	26308	33660	30598	26586	70591	50400	66470	116405	139458	43094	22490	27660
MEAN	849	1122	987	858	2521	1626	2216	3755	4649	1390	725	922
MAX	1220	2490	1900	1290	5720	2670	3560	20700	15000	3060	1270	2270
MIN	642	643	628	600	616	1040	1340	892	788	625	467	491
(*)	+3	+44	+35	-2	+313	+140	+145	+251	-166	+3	-13	+10

CAL YR 1980 TOTAL 1512048 MEAN 4131 MAX 46100 MIN 628 MEAN♦ 4184 CFSM♦ 1.14 IN♦ 15.47
WTR YR 1981 TOTAL 653720 MEAN 1791 MAX 20700 MIN 467 MEAN♦ 1853 CFSM♦ .50 IN♦ 6.83

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.
♦ Adjusted for change in contents.

02027000 TYE RIVER NEAR LOVINGSTON, VA

LOCATION.--Lat 37°42'55", long 78°58'55", Nelson County, Hydrologic Unit 02080203, on right bank at downstream side of bridge on State Highway 158, 3.5 mi (5.6 km) downstream from Hat Creek, 4.8 mi (7.7 km) upstream from Piney River, and 6.8 mi (10.9 km) southwest of Lovingston.

DRAINAGE AREA.--92.8 mi^2 (240.4 km^2).

PERIOD OF RECORD.--August 1938 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 578.39 ft (176.293 m) National Geodetic Vertical Datum of 1929. Sept. 15, 1969, to Oct. 15, 1970, nonrecording gage at same site and datum.

REMARKS.--Records fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--43 years, 155 ft^3/s (4.390 m^3/s), 22.68 in/yr (576 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,000 ft^3/s (2,270 m^3/s) Aug. 20, 1969, gage height, 29.0 ft (8.84 m), from floodmarks, from rating curve extended above 7,600 ft^3/s (220 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.50 ft^3/s (0.014 m^3/s) Sept. 10, 11, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,980 ft^3/s (141 m^3/s) at 2115 hours Sept. 6, gage height, 9.18 ft (2.798 m), no other peak above base of 1,600 ft^3/s (45 m^3/s); minimum observed, 9.1 ft^3/s (0.26 m^3/s) Oct. 13-18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	14	39	19	20	110	109	56	131	50	44	55
2	10	14	34	18	158	99	102	52	314	100	42	60
3	11	16	30	16	152	86	94	48	252	178	41	84
4	12	25	30	15	98	79	91	48	205	288	40	158
5	12	30	28	15	75	97	108	48	174	320	39	158
6	16	21	25	14	66	83	117	50	151	307	50	670
7	16	19	25	14	61	70	102	60	140	254	127	687
8	13	19	25	14	25	65	98	56	114	167	126	318
9	10	18	23	14	37	63	101	54	100	130	65	217
10	10	19	28	13	35	61	97	56	88	293	51	171
11	9.6	17	25	13	419	60	92	75	77	421	46	143
12	9.6	16	25	13	308	58	87	69	69	219	50	124
13	9.1	15	25	13	228	57	100	60	65	167	47	106
14	9.1	14	25	14	183	56	89	53	63	142	43	93
15	9.1	15	23	16	105	54	85	66	59	117	40	86
16	9.1	16	21	19	88	53	80	58	55	108	37	112
17	9.1	19	21	16	80	51	87	54	52	96	34	147
18	9.1	40	21	14	74	50	91	52	48	80	31	100
19	14	43	21	16	109	49	81	70	45	71	28	85
20	16	35	20	16	355	48	96	81	70	67	26	78
21	12	25	20	15	250	47	82	70	56	60	24	65
22	12	25	19	15	200	46	78	65	60	51	22	57
23	12	23	19	14	207	50	77	58	44	45	20	47
24	11	49	19	14	211	47	75	54	41	62	19	47
25	19	80	19	13	183	45	71	52	38	83	17	47
26	43	60	25	13	157	43	68	50	36	56	16	47
27	21	50	21	12	136	42	66	48	33	52	16	39
28	20	73	20	13	122	41	62	192	31	64	14	35
29	18	53	20	14	---	40	59	145	29	73	16	35
30	17	63	20	15	---	101	56	125	27	48	23	34
31	16	---	20	16	---	134	---	131	---	46	37	---
TOTAL	424.8	926	736	456	4142	1985	2591	2154	2667	4215	1231	4105
MEAN	13.7	30.9	23.7	14.7	148	64.0	86.4	69.5	88.9	136	39.7	137
MAX	43	80	39	19	419	134	117	192	314	421	127	687
MIN	9.1	14	19	12	20	40	56	48	27	45	14	34
CFSM	.15	.33	.26	.16	1.60	.69	.93	.75	.96	1.47	.43	1.48
IN.	.17	.37	.30	.18	1.66	.80	1.04	.86	1.07	1.69	.49	1.65

CAL YR 1980 TOTAL 50670.1 MEAN 138 MAX 2030 MIN 7.1 CFSM 1.49 IN 20.31
WTR YR 1981 TOTAL 25632.8 MEAN 70.2 MAX 687 MIN 9.1 CFSM .76 IN 10.28

02027500 PINEY RIVER AT PINEY RIVER, VA

LOCATION.--Lat 37°42'08", long 79°01'40", Nelson County, Hydrologic Unit 02080203, on left bank at upstream side of bridge on State Highway 151, 0.2 mi (0.3 km) southwest of Piney River Post Office, 1.7 mi (2.7 km) downstream from Indian Creek, and 2.5 mi (4.0 km) southeast of Lowesville.

DRAINAGE AREA.--47.6 mi^2 (123.3 km^2).

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-72-1: 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 633.58 ft (193.115 m) National Geodetic Vertical Datum of 1929. Prior to May 27, 1969, water-stage recorder, and Nov. 4, 1969, to Feb. 26, 1970, nonrecording gage at site 20 ft (6 m) downstream from former highway bridge at same datum. Feb. 26, 1970, to Sept. 20, 1973, on right bank 20 ft (6 m) upstream from bridge at same datum.

REMARKS.--Records good. Periodic dewatering of upstream quarries adds small amount of inflow. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--32 years, 93.9 ft^3/s (2.659 m^3/s), 26.79 in/yr (680 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft^3/s (1,080 m^3/s) Aug. 20, 1969, gage height, 13.8 ft (4.21 m), from floodmarks, from rating curve extended above 6,000 ft^3/s (170 m^3/s) on basis of slope-area measurement of peak flow; minimum, 1.1 ft^3/s (0.031 m^3/s) Sept. 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1949 reached a stage of 9.9 ft (3.02 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 521 ft^3/s (14.8 m^3/s) Sept. 6, gage height, 2.42 ft (0.738 m), no peak above base of 650 ft^3/s (18 m^3/s); minimum daily, 4.5 ft^3/s (0.13 m^3/s) Oct. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	8.0	21	9.2	12	66	76	38	92	22	24	17
2	5.0	7.2	20	8.8	46	60	74	36	216	37	22	22
3	5.6	6.4	17	8.4	32	54	69	33	197	125	22	49
4	6.0	16	17	8.0	45	51	66	31	170	226	22	108
5	6.4	26	17	8.0	39	56	75	30	145	260	20	109
6	6.8	17	16	7.7	32	49	72	30	124	294	30	120
7	6.8	14	15	7.2	25	45	69	31	108	252	38	161
8	6.1	12	14	7.0	20	42	69	28	88	196	37	105
9	5.8	9.2	17	6.8	17	41	71	27	75	155	27	81
10	5.3	9.6	20	6.7	17	39	65	27	66	172	23	66
11	5.2	8.4	17	6.4	144	38	62	37	58	160	22	56
12	5.1	6.8	16	6.2	124	36	60	30	51	121	23	49
13	5.0	6.0	15	6.0	94	34	63	27	47	104	20	42
14	4.8	5.6	14	7.0	74	32	58	27	43	89	18	37
15	4.6	5.6	14	8.0	63	31	56	33	38	76	18	35
16	4.6	5.8	13	9.0	55	31	53	30	34	72	17	45
17	4.5	12	12	9.6	50	29	60	27	30	64	15	49
18	4.7	36	11	10	46	29	59	28	27	56	14	35
19	5.6	25	11	11	56	28	56	40	26	51	14	29
20	6.4	19	10	11	130	27	59	38	44	49	14	26
21	6.0	17	10	9.6	125	26	57	34	31	44	13	24
22	5.8	15	9.7	9.2	115	25	55	33	32	39	12	23
23	5.5	14	10	8.8	112	28	55	32	24	35	12	21
24	5.3	25	11	8.0	104	26	54	31	22	46	11	20
25	25	37	13	7.2	95	25	51	30	21	50	10	19
26	28	24	17	7.2	86	24	48	29	19	37	9.6	18
27	17	23	15	6.8	77	23	46	29	18	33	10	18
28	16	30	14	7.2	71	23	43	104	17	35	9.6	17
29	14	27	12	6.8	---	22	41	91	16	44	9.2	16
30	11	22	11	6.4	---	54	40	92	15	30	13	16
31	9.2	---	10	6.8	---	79	---	89	---	26	13	---
TOTAL	252.3	489.6	439.7	246.0	1906	1173	1782	1222	1894	3000	562.4	1433
MEAN	8.14	16.3	14.2	7.94	68.1	37.8	59.4	39.4	63.1	96.8	18.1	47.8
MAX	28	37	21	11	144	79	76	104	216	294	38	161
MIN	4.5	5.6	9.7	6.0	12	22	40	27	15	22	9.2	16
CFSM	.17	.34	.30	.17	1.43	.79	1.25	.83	1.33	2.03	.38	1.00
IN.	.20	.38	.34	.19	1.49	.92	1.39	.95	1.48	2.34	.44	1.12

CAL YR 1980 TOTAL 29307.5 MEAN 80.1 MAX 1460 MIN 4.2 CFSM 1.68 IN 22.90
WTR YR 1981 TOTAL 14400.0 MEAN 39.5 MAX 294 MIN 4.5 CFSM .83 IN 11.25

02027800 BUFFALO RIVER NEAR TYE RIVER, VA

LOCATION.--Lat 37°36'20", long 78°55'25", Nelson County, Hydrologic Unit 02080203, on right bank 35 ft (11 m) upstream from bridge on State Highway 657, 2.1 mi (3.4 km) upstream from mouth, and 3.5 mi (5.6 km) southeast of town of Tye River.

DRAINAGE AREA.--147 mi² (381 km²).

PERIOD OF RECORD.--August 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 444.39 ft (135.450 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--21 years, 169 ft³/s (4.786 m³/s), 15.61 in/yr (396 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,000 ft³/s (1,270 m³/s) Aug. 20, 1969, gage height, 27.95 ft (8.519 m), from floodmark, from rating curve extended above 1,800 ft³/s (51 m³/s) on basis of computation of flow over dam at gage height 11.03 ft (3.362 m) and slope-area measurement at gage height 27.95 ft (8.519 m); minimum, 3.2 ft³/s (0.091 m³/s) Sept. 8-13, 1966; minimum gage height, 0.28 ft (0.085 m) Sept. 9-13, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 916 ft³/s (25.9 m³/s) July 5, gage height, 4.83 ft (1.472 m), no peak above base of 1,400 ft³/s (40 m³/s); minimum, 20 ft³/s (0.57 m³/s) Aug. 28, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	37	49	47	130	113	116	60	77	26	29	27
2	32	33	48	45	120	110	108	55	205	49	28	27
3	30	31	46	44	82	105	94	51	233	194	26	34
4	31	45	46	44	77	100	90	50	178	344	25	72
5	32	60	46	44	86	110	93	49	167	544	24	152
6	37	52	46	43	82	95	117	48	116	408	29	98
7	34	46	46	42	75	90	100	52	107	271	41	423
8	32	45	46	42	73	85	95	45	88	190	81	217
9	30	44	49	41	70	81	93	44	79	146	49	154
10	30	49	64	42	80	78	97	46	71	155	37	117
11	31	47	56	40	278	75	89	55	64	217	32	97
12	30	46	51	39	230	70	85	54	55	109	118	82
13	28	46	51	38	145	68	102	43	53	92	88	71
14	28	46	50	40	137	67	94	41	60	79	53	64
15	29	46	50	47	113	66	90	43	49	67	49	57
16	30	47	50	50	106	65	81	47	44	61	43	76
17	30	50	50	52	97	63	83	41	40	61	38	75
18	33	99	49	53	92	64	100	39	37	60	34	59
19	54	70	47	56	97	63	84	64	36	58	31	53
20	37	55	46	56	330	61	87	67	52	55	31	52
21	35	50	45	54	250	60	88	54	44	55	28	49
22	34	48	43	52	184	59	79	45	43	48	26	47
23	34	45	44	51	161	71	77	42	35	44	25	44
24	34	64	49	50	154	78	77	41	31	67	24	42
25	61	96	60	49	138	67	70	40	30	138	24	40
26	58	67	80	45	129	65	67	38	29	69	22	39
27	44	59	68	43	122	62	65	37	26	59	22	38
28	43	71	57	43	116	59	63	104	24	48	21	37
29	43	62	54	41	---	58	60	93	23	42	20	35
30	41	54	50	40	---	74	59	63	23	36	23	34
31	41	---	48	50	---	145	---	73	---	32	32	---
TOTAL	1120	1610	1584	1423	3754	2427	2603	1624	2119	3824	1153	2412
MEAN	36.1	53.7	51.1	45.9	134	78.3	86.8	52.4	70.6	123	37.2	80.4
MAX	61	99	80	56	330	145	117	104	233	544	118	423
MIN	28	31	43	38	70	58	59	37	23	26	20	27
CFSM	.25	.37	.35	.31	.91	.53	.59	.36	.48	.84	.25	.55
IN.	.28	.41	.40	.36	.95	.61	.66	.41	.54	.97	.29	.61

CAL YR 1980 TOTAL 59012 MEAN 161 MAX 1370 MIN 25 CFSM 1.10 IN 14.93
WTR YR 1981 TOTAL 25653 MEAN 70.3 MAX 544 MIN 20 CFSM .49 IN 6.49

02028500 ROCKFISH RIVER NEAR GREENFIELD, VA

LOCATION.--Lat 37°52'10", long 78°49'25", Nelson County, Hydrologic Unit 02080203, on left bank 50 ft (15 m) downstream from bridge on State Highway 634, 2.8 mi (4.5 km) downstream from confluence of North and South Forks, and 4.1 mi (6.6 km) south of Greenfield.

DRAINAGE AREA.--94.6 mi^2 (245.0 km^2).

PERIOD OF RECORD.--April 1943 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 530.29 ft (161.632 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 21, 1943, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 139 ft^3/s (3.936 m^3/s), 19.95 in/yr (507 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,000 ft^3/s (1,980 m^3/s) Aug. 20, 1969, gage height, 31.2 ft (9.51 m), from floodmarks, from rating curve extended above 8,500 ft^3/s (240 m^3/s) on basis of contracted-opening measurement at gage height 18.11 ft (5.520 m), slope-area measurements at gage heights 17.2 ft (5.24 m), 23.4 ft (7.13 m), and 31.2 ft (9.51 m), and peak runoff comparison with nearby stations; minimum, 0.20 ft^3/s (0.006 m^3/s) Sept. 8-12, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 15, 1942, reached a stage of 23.4 ft (7.13 m), from floodmarks, discharge, about 30,000 ft^3/s (850 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 827 ft^3/s (23.4 m^3/s) Feb. 20, gage height, 3.73 ft (1.137 m), no peak above base of 1,500 ft^3/s (42 m^3/s); minimum, 4.6 ft^3/s (0.13 m^3/s) Aug. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	15	39	27	17	82	72	39	68	30	40	20
2	14	15	37	26	66	76	66	36	197	73	34	24
3	13	15	35	25	51	71	63	33	139	90	34	44
4	13	19	33	24	40	67	61	32	141	125	46	72
5	13	25	32	24	33	74	64	30	110	127	30	82
6	14	18	32	24	33	68	62	30	95	119	58	122
7	14	17	32	24	32	64	56	36	87	129	80	219
8	13	17	32	23	32	63	55	32	74	90	136	101
9	12	17	32	20	27	60	56	29	67	77	60	77
10	11	17	32	19	29	56	54	35	62	85	39	61
11	11	17	30	18	339	55	52	48	55	110	34	50
12	11	16	29	17	148	54	53	43	48	71	51	42
13	11	16	29	16	95	53	63	37	45	63	30	37
14	11	16	29	20	74	51	57	36	42	53	22	33
15	11	17	29	21	65	50	55	36	39	44	17	30
16	11	17	29	23	60	50	52	40	34	39	15	66
17	11	24	28	24	57	49	53	36	30	40	15	64
18	11	57	27	24	55	48	53	33	27	35	12	49
19	17	36	26	26	102	48	50	54	25	40	12	41
20	17	29	25	27	474	45	51	64	51	64	13	36
21	14	28	21	28	237	45	49	56	36	73	11	30
22	13	25	21	28	152	43	48	52	31	54	10	28
23	13	24	24	26	141	45	48	48	25	46	9.4	25
24	13	52	25	25	131	44	45	45	22	65	8.2	20
25	45	56	24	23	112	43	42	41	21	94	6.6	19
26	33	43	23	25	101	43	41	37	18	78	5.8	19
27	22	41	24	25	92	42	40	35	17	78	5.8	18
28	20	57	26	25	86	42	39	86	17	76	5.4	17
29	19	48	29	23	---	42	37	80	16	87	5.0	14
30	17	41	29	21	---	78	37	73	20	63	12	14
31	17	---	28	15	---	83	---	73	---	45	14	---
TOTAL	479	835	891	716	2881	1734	1574	1385	1659	2263	871.2	1474
MEAN	15.5	27.8	28.7	23.1	103	55.9	52.5	44.7	55.3	73.0	28.1	49.1
MAX	45	57	39	28	474	83	72	86	197	129	136	219
MIN	11	15	21	15	17	42	37	29	16	30	5.0	14
CFSM	.16	.29	.30	.24	1.09	.59	.56	.47	.59	.77	.30	.52
IN.	.19	.33	.35	.28	1.13	.68	.62	.54	.65	.89	.34	.58

CAL YR 1980 TOTAL 46729.0 MEAN 128 MAX 1510 MIN 10 CFSM 1.35 IN 18.38
WTR YR 1981 TOTAL 16762.2 MEAN 45.9 MAX 474 MIN 5.0 CFSM .49 IN 6.59

02029000 JAMES RIVER AT SCOTTSVILLE, VA

LOCATION.--Lat 37°47'50", long 78°29'30", Albemarle County, Hydrologic Unit 02080203, on left bank 900 ft (270 m) downstream from bridge on State Highway 20 at Scottsville, 6.8 mi (10.9 km) upstream from Hardware River, and at mile 188.6 (303.5 km).

DRAINAGE AREA.--4,584 mi² (11,873 km²).

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 727: 1931(m). WSP 972: 1936(M), 1940(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 253.18 ft (77.169 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good. Large diurnal fluctuation caused by powerplants above station. Flow regulated since December 1979 by Moomaw Lake (station 02011795) 197.5 mi (317.8 km) upstream. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 5,131 ft³/s (145.3 m³/s), 15.20 in/yr (386 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 301,000 ft³/s (8,520 m³/s) June 22, 1972, gage height, 34.02 ft (10.369 m), from floodmarks, from rating curve extended above 120,000 ft³/s (3,400 m³/s) on basis of slope-conveyance study; minimum daily, 300 ft³/s (8.50 m³/s) Sept. 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in October 1870 reached a stage of 30.7 ft (9.36 m), discharge, about 215,000 ft³/s (6,100 m³/s), and flood in November 1877 reached a stage of 27.9 ft (8.50 m), discharge, about 160,000 ft³/s (4,500 m³/s), from information by local resident. Flood in March 1913 reached a stage of 25.16 ft (7.669 m), from floodmarks, discharge, 121,000 ft³/s (3,430 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 28,000 ft³/s (793 m³/s) May 30, gage height, 12.74 ft (3.883 m), no peak above base of 35,000 ft³/s (990 m³/s); minimum, 580 ft³/s (16.4 m³/s) Jan. 6, gage height, 2.12 ft (0.646 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1250	1340	1640	1310	1060	3120	2600	2590	10300	1060	814	1030
2	1340	1150	2410	1060	921	2690	2920	2030	9260	1070	1160	741
3	972	911	1860	1060	1630	2960	2510	1460	11900	1330	804	724
4	1320	1150	1080	1470	1380	2070	2630	1780	16700	3720	823	1220
5	937	1160	1590	942	2470	2720	2720	2070	15500	4770	801	2230
6	1080	1250	1550	978	1510	2050	2470	1990	12700	4450	825	3030
7	1070	1110	1490	1530	1550	2170	2650	1450	9600	5620	1050	8000
8	920	1160	967	1160	1600	2140	2640	1430	8280	3730	3780	4610
9	1100	1120	1260	963	1470	2770	2060	1440	8280	3190	2470	2870
10	1040	1030	1490	1070	1700	2440	2370	1440	6820	2740	1650	2040
11	984	864	1550	1020	2140	2540	1980	1520	5510	4060	1410	1620
12	964	907	1460	1050	4530	1640	2030	2000	4370	2410	1530	1540
13	782	1280	1250	1420	5790	2330	1990	1540	4280	2360	1920	1470
14	878	898	1300	1410	6070	2000	2440	1200	3210	2370	1500	1270
15	886	1150	1240	1550	3910	1380	2480	1440	4010	1630	1030	1000
16	999	886	1290	1280	3110	1390	1750	1950	3710	1680	967	1200
17	879	933	1300	1010	2730	1820	2120	1480	3150	1520	914	1330
18	840	1430	915	1060	2510	1640	1930	1760	2140	1500	902	1480
19	1090	1530	1260	1430	2140	1490	2140	2230	1910	1500	796	1190
20	899	1550	968	1270	4990	1550	2980	2580	1410	903	760	1210
21	957	2120	1340	1250	5430	1330	3540	2450	1510	1220	815	977
22	1040	1500	1330	1220	4090	1390	3460	9060	1620	1270	705	1180
23	1140	1670	974	1180	4660	1550	3710	7690	1740	937	754	870
24	976	1470	1070	1110	4460	1630	3860	6270	1760	923	692	842
25	1070	1780	1150	996	4170	1570	3310	3960	1260	1720	791	824
26	1240	1910	1240	1210	5110	1380	2700	3400	1000	1950	650	788
27	1220	2430	1230	1160	4570	1550	3030	2990	1260	1410	608	726
28	1060	2790	1350	1160	3850	1400	3040	2890	1050	1180	633	739
29	1470	2500	1220	1100	---	1660	2850	10900	870	1310	602	795
30	1420	1960	931	853	---	1620	2170	24200	987	1350	622	727
31	1010	---	1150	843	---	2790	---	14100	---	1180	671	---
TOTAL	32833	42939	40855	36125	89551	60780	79080	123290	156097	66063	33449	48273
MEAN	1059	1431	1318	1165	3198	1961	2636	3977	5203	2131	1079	1609
MAX	1470	2790	2410	1550	6070	3120	3860	24200	16700	5620	3780	8000
MIN	782	864	915	843	921	1330	1750	1200	870	903	602	724
(*)	+3	+44	+35	+53	-2	+313	+140	+145	+251	-166	+3	-13

CAL YR 1980 TOTAL 1872752 MEAN 5117 MAX 54000 MIN 782 MEAN‡ 5170 CFSM‡ 1.13 IN‡ 15.36
WTR YR 1981 TOTAL 809335 MEAN 2217 MAX 24200 MIN 602 MEAN‡ 2279 CFSM‡ .50 IN‡ 6.75

* Change in contents, equivalent in cubic feet per second, in Moomaw Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02030000 HARDWARE RIVER BELOW BRIERY RUN, NEAR SCOTTSVILLE, VA

LOCATION.--Lat 37°48'45", long 78°27'20", Fluvanna County, Hydrologic Unit 02080203, on left bank 75 ft (23 m) upstream from bridge on State Highway 637, 0.8 mi (1.3 km) downstream from Briery Run, 2.4 mi (3.9 km) northeast of Scottsville, and 10.8 mi (17.4 km) upstream from mouth.

DRAINAGE AREA.--116 mi^2 (300 km^2).

PERIOD OF RECORD.--October 1938 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 952: 1941(M). WSP 1002: 1940, 1943. WSP 1032: 1940, 1944.

GAGE.--Water-stage recorder. Datum of gage is 294.96 ft (89.904 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--43 years, 127 ft^3/s (3.600 m^3/s), 14.87 in/yr (378 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,000 ft^3/s (1,470 m^3/s) Aug. 20, 1969, gage height, 31.0 ft (9.45 m), from floodmarks, from rating curve extended above 18,000 ft^3/s (510 m^3/s) on basis of slope-area measurements at gage heights 23.8 ft (7.25 m) and 31.0 ft (9.45 m); minimum, 0.10 ft^3/s (0.003 m^3/s) Sept. 5-8, 1966; minimum gage height, 0.81 ft (0.247 m) Sept. 8, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,190 ft^3/s (33.7 m^3/s) Aug. 8, gage height, 7.54 ft (2.298 m), no peak above base of 1,500 ft^3/s (42 m^3/s); minimum, 8.8 ft^3/s (0.25 m^3/s) June 30, gage height, 1.37 ft (0.418 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	24	24	34	27	33	47	55	33	40	10	12	24
2	22	23	32	27	55	42	47	31	133	45	11	21
3	22	23	29	27	62	40	39	28	106	44	11	22
4	23	26	28	26	39	37	36	25	101	168	30	34
5	21	38	28	25	38	48	39	24	72	76	17	76
6	22	28	28	25	37	47	47	25	52	156	14	37
7	22	26	28	24	34	39	37	30	54	76	76	36
8	20	25	28	24	30	35	36	27	40	42	664	37
9	20	25	29	24	28	34	37	24	33	30	120	47
10	19	26	34	23	32	34	41	27	29	25	63	32
11	19	25	31	22	209	33	36	54	28	37	46	27
12	19	24	28	22	172	32	38	76	24	26	402	24
13	17	24	28	23	80	31	74	37	23	20	162	23
14	17	24	28	26	74	30	57	30	22	19	90	21
15	18	25	27	33	50	28	49	28	21	16	66	20
16	18	26	27	34	43	30	41	28	19	14	52	25
17	18	34	27	30	39	29	40	24	16	16	42	31
18	19	93	26	26	39	28	42	23	15	14	35	27
19	24	49	26	32	44	28	37	60	15	14	32	23
20	24	34	26	33	418	28	39	88	15	13	31	20
21	22	32	20	34	200	28	38	52	18	13	28	20
22	21	29	27	34	118	27	34	37	23	12	26	19
23	21	28	28	32	92	29	34	29	16	12	25	18
24	21	38	31	28	86	29	34	27	13	16	24	16
25	54	66	30	27	68	28	31	25	12	28	22	16
26	52	40	30	30	58	26	29	24	11	24	20	16
27	28	37	29	28	52	28	29	21	9.6	20	20	16
28	26	52	30	26	48	26	33	38	9.6	20	20	16
29	25	47	34	23	---	26	28	64	9.2	24	19	15
30	24	37	33	22	---	46	28	35	9.2	17	32	15
31	24	---	31	22	---	94	---	41	---	12	33	---
TOTAL	726	1028	895	839	2278	1087	1185	1115	988.6	1059	2245	774
MEAN	23.4	34.3	28.9	27.1	81.4	35.1	39.5	36.0	33.0	34.2	72.4	25.8
MAX	54	93	34	34	418	94	74	88	133	168	664	76
MIN	17	23	20	22	28	26	28	21	9.2	10	11	15
CFSM	.20	.30	.25	.23	.70	.30	.34	.31	.28	.30	.62	.22
IN.	.23	.33	.29	.27	.73	.35	.38	.36	.32	.34	.72	.25

CAL YR 1980 TOTAL 42017.0 MEAN 115 MAX 858 MIN 16 CFSM .99 IN 13.47
WTR YR 1981 TOTAL 14219.6 MEAN 39.0 MAX 664 MIN 9.2 CFSM .34 IN 4.56

02030500 SLATE RIVER NEAR ARVONIA, VA

LOCATION.--Lat 37°42'10", long 78°22'40", Buckingham County, Hydrologic Unit 02080203, on left bank 250 ft (76 m), upstream from bridge on State Highway 676, 1.8 mi (2.9 km) northwest of Arvonia, 2.9 mi (4.7 km) upstream from Hunts Creek, and 3.8 mi (6.1 km) upstream from mouth.

DRAINAGE AREA.--226 mi² (585 km²).

PERIOD OF RECORD.--April 1926 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1928-29, 1932, 1933-34(M), 1935. WSP 2104: 1928(M), 1935-37(M), 1940(M), 1944(M), 1949(M), 1955(M), drainage area. WDR VA-72-1: 1935, 1937, 1944, 1949, 1971(M).

GAGE.--Water-stage recorder. Datum of gage is 238.78 ft (72.780 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Feb. 15, 1936, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--55 years, 230 ft³/s (6.514 m³/s), 13.82 in/yr (351 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,200 ft³/s (1,200 m³/s) June 22, 1972, gage height, 25.10 ft (7.650 m), from high-water mark in gage house, from rating curve extended above 5,900 ft³/s (170 m³/s) on basis of slope-area measurement of peak flow; minimum, 2.0 ft³/s (0.057 m³/s) Sept. 28 to Oct. 2, 1930; minimum gage height, 1.35 ft (0.411 m) Sept. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,820 ft³/s (79.9 m³/s) at 1230 hours Aug. 8, gage height, 9.61 ft (2.929 m), no other peak above base of 2,100 ft³/s (59 m³/s); minimum, 8.6 ft³/s (0.24 m³/s) July 1, gage height, 1.81 ft (0.552 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	48	70	62	54	87	111	64	55	10	26	39
2	45	47	66	62	95	85	90	63	58	21	22	35
3	43	45	63	59	204	82	81	57	65	66	20	31
4	43	48	61	51	152	79	75	54	61	114	22	32
5	42	66	59	44	94	91	76	53	56	185	32	55
6	41	74	59	63	79	121	136	53	60	295	31	70
7	43	58	59	59	74	100	138	66	59	434	53	476
8	41	53	59	61	78	86	101	72	63	128	1790	281
9	38	52	61	59	93	80	92	59	56	70	626	120
10	36	52	70	58	89	78	94	56	45	50	171	90
11	35	51	75	50	386	76	91	75	40	43	99	64
12	33	51	67	47	468	75	84	92	35	44	152	51
13	31	49	62	45	178	73	94	70	32	40	206	45
14	30	49	60	45	132	72	110	57	32	33	115	41
15	30	51	59	59	112	69	104	52	32	29	74	38
16	32	52	58	68	98	70	97	50	30	25	59	54
17	33	56	58	66	91	74	89	48	27	23	51	88
18	35	126	57	61	88	72	95	46	24	23	51	67
19	55	144	57	62	91	69	95	89	21	22	48	53
20	55	83	56	64	638	68	96	165	21	20	42	45
21	47	66	50	68	450	67	116	130	25	20	41	40
22	40	61	45	76	223	66	99	92	59	20	37	37
23	38	58	60	79	163	73	86	72	45	18	35	35
24	37	65	62	68	144	96	86	62	30	20	34	32
25	52	121	60	66	123	92	81	56	24	135	32	30
26	92	107	56	69	105	78	72	51	20	96	30	29
27	74	78	61	72	95	74	69	47	17	57	28	29
28	53	91	60	67	90	72	68	45	14	43	27	28
29	50	102	67	88	---	69	65	60	12	46	25	27
30	48	82	71	85	---	75	62	74	10	53	27	26
31	48	---	68	80	---	117	---	65	---	36	34	---
TOTAL	1358	2086	1896	1962	4687	2486	2753	2095	1128	2219	4040	2088
MEAN	43.8	69.5	61.2	63.3	167	80.2	91.8	67.6	37.6	71.6	130	69.6
MAX	92	144	75	88	638	121	138	165	65	434	1790	476
MIN	30	45	45	44	54	66	62	45	10	10	20	26
CFSM	.19	.31	.27	.28	.74	.36	.41	.30	.17	.32	.58	.31
IN.	.22	.34	.31	.32	.77	.41	.45	.34	.19	.37	.66	.34

CAL YR 1980 TOTAL 66333 MEAN 181 MAX 2630 MIN 22 CFSM .80 IN 10.92
WTR YR 1981 TOTAL 28798 MEAN 78.9 MAX 1790 MIN 10 CFSM .35 IN 4.74

02031000 MECHUMS RIVER NEAR WHITE HALL, VA

LOCATION.--Lat 38°06'09", long 78°35'35", Albemarle County, Hydrologic Unit 02080204, on right bank 20 ft (6 m) downstream from bridge on State Highway 614, 1.5 mi (2.4 km) downstream from Rocky Run, 4.0 mi (6.4 km) southeast of White Hall, and 4.9 mi (7.9 km) upstream from confluence with Moormans River.

DRAINAGE AREA.--95.4 mi^2 (247.1 km^2).

PERIOD OF RECORD.--October 1942 to September 1951, October 1979 to current year. Prior to September 1951, published as Mechum River near Ivy.

GAGE.--Water-stage recorder. Datum of gage is 429.75 ft (130.988 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1942, to Sept. 30, 1951, on right bank 20 ft (6 m) downstream from former highway bridge at different datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--11 years, 103 ft^3/s (2.917 m^3/s) 14.66 in/yr (372 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,000 ft^3/s (566 m^3/s) Oct. 15, 1942, gage height, 30.3 ft (9.24 m), datum then in use, from floodmarks, from rating curve extended above 8,000 ft^3/s (230 m^3/s); minimum, 0.6 ft^3/s (0.017 m^3/s) Sept. 9, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 6, 1979, reached a stage of 24.5 ft (7.47 m), from floodmarks, discharge, about 10,500 ft^3/s (297 m^3/s), from rating curve extended above 3,400 ft^3/s (96 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,300 ft^3/s (36.8 m^3/s) at 0330 hours Feb. 20, gage height, 9.01 ft (2.746 m), no other peak above base of 600 ft^3/s (17 m^3/s); minimum, 7.0 ft^3/s (0.20 m^3/s) June 30, gage height, 4.09 ft (1.247 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	20	25	42	29	25	70	40	41	47	31	14	40
2	21	25	39	28	88	65	38	30	120	88	12	17
3	25	25	35	25	56	61	35	27	85	71	22	61
4	14	32	33	23	40	58	33	26	95	154	35	80
5	14	37	33	20	34	65	33	23	77	87	20	85
6	22	29	33	22	30	60	36	24	63	113	47	57
7	17	27	32	25	29	54	30	31	62	74	60	65
8	17	27	32	22	28	52	31	25	51	53	184	104
9	17	26	33	20	29	51	33	22	44	41	69	87
10	15	27	35	18	32	49	37	29	43	35	48	58
11	15	25	31	16	309	46	34	50	39	120	39	46
12	15	24	29	14	156	45	34	45	32	55	84	39
13	14	25	29	14	89	45	51	31	31	41	49	32
14	16	25	29	16	74	42	42	27	28	35	37	28
15	15	25	28	24	61	41	45	26	25	26	30	31
16	15	26	28	26	57	41	41	27	22	22	26	188
17	16	33	29	25	54	40	42	25	20	25	21	130
18	17	76	27	24	54	37	45	22	16	22	18	85
19	40	45	29	26	78	38	41	45	16	19	16	66
20	22	35	25	29	675	37	43	54	25	17	16	55
21	17	32	23	31	260	37	41	43	23	22	14	48
22	17	30	22	31	158	36	38	37	17	17	14	42
23	18	28	28	30	130	38	39	30	14	14	12	37
24	18	49	30	27	122	37	41	29	13	20	12	31
25	74	66	28	25	102	35	35	27	12	33	10	28
26	48	45	23	28	89	33	33	25	11	28	9.5	26
27	29	44	24	29	81	33	33	23	8.7	21	8.7	25
28	27	74	28	27	84	33	31	74	8.0	32	9.1	22
29	27	57	34	25	---	33	29	66	7.2	56	8.7	20
30	25	46	34	23	---	42	30	49	8.0	26	9.1	19
31	25	---	28	21	---	48	---	49	---	17	11	---
TOTAL	693	1090	933	743	3024	1402	1114	1082	1062.9	1415	965.1	1652
MEAN	22.4	36.3	30.1	24.0	108	45.2	37.1	34.9	35.4	45.6	31.1	55.1
MAX	74	76	42	31	675	70	51	74	120	154	184	188
MIN	14	24	22	14	25	33	29	22	7.2	14	8.7	17
CFSM	.24	.38	.32	.25	1.13	.47	.39	.37	.37	.48	.33	.58
IN.	.27	.42	.36	.29	1.18	.55	.43	.42	.41	.55	.38	.64

CAL YR 1980 TOTAL 39397.0 MEAN 108 MAX 1910 MIN 14 CFSM 1.13 IN 15.36
WTR YR 1981 TOTAL 15176.0 MEAN 41.6 MAX 675 MIN 7.2 CFSM .44 IN 5.92

02032250 MOORMANS RIVER NEAR FREE UNION, VA

LOCATION.--Lat 38°08'26", long 78°33'22", Albemarle County, Hydrologic Unit 02080204, on right bank 130 ft (40 m) upstream from bridge on State Highway 601, 0.4 mi (0.6 km) upstream from confluence with Mechums River, 0.8 mi (1.3 km) downstream from Wards Creek, and 1.1 mi (1.8 km) southeast of Free Union.

DRAINAGE AREA.--74.6 mi^2 (193.1 km^2).

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 403.11 ft (122.868 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Rivanna Water and Sewer Authority at Sugar Hollow reservoir 12.0 mi (19.3 km) upstream, capacity, 1,320 acre-ft (1.63 hm^3), from which an average of 7.0 ft^3/s (0.20 m^3/s) is diverted for industrial and municipal use. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,800 ft^3/s (108 m^3/s) Apr. 9, 1980, gage height, 12.31 ft (3.752 m), from rating curve extended above 2,700 ft^3/s (76 m^3/s); minimum, 1.3 ft^3/s (0.037 m^3/s) Sept. 16, 17, 1980, gage height, 2.86 ft (0.872 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 21, 1972, reached a stage of 20.2 ft (6.16 m), from floodmarks, discharge, about 8,800 ft^3/s (249 m^3/s), and flood of Sept. 6, 1979, reached a stage of 21.55 ft (6.568 m), from floodmarks, discharge, about 9,700 ft^3/s (275 m^3/s), from rating curve extended above 2,700 ft^3/s (76 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 802 ft^3/s (22.7 m^3/s) at 0200 hours Feb. 20, gage height, 6.05 ft (1.844 m), no other peak above base of 700 ft^3/s (20 m^3/s); minimum, 1.7 ft^3/s (0.048 m^3/s) July 1, gage height, 2.90 ft (0.884 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	5.3	20	8.8	4.8	42	18	29	74	26	8.1	24
2	2.9	5.3	18	8.8	40	39	18	26	107	117	7.0	7.0
3	2.9	5.3	15	8.4	34	38	17	21	101	197	10	45
4	2.7	7.0	14	7.4	18	35	16	19	127	303	25	65
5	2.6	11	16	5.3	14	40	17	18	113	215	15	62
6	2.7	8.1	18	5.6	11	41	19	18	99	316	56	34
7	2.6	7.0	18	6.4	9.4	31	18	22	86	159	43	41
8	2.6	7.0	20	5.3	8.4	30	17	18	65	101	40	50
9	2.6	6.4	21	4.8	8.0	25	17	17	55	71	29	45
10	2.4	8.4	17	4.5	9.8	25	19	17	50	49	22	31
11	2.4	7.4	19	4.2	173	24	18	36	43	65	17	25
12	2.4	6.7	20	3.7	96	24	18	45	31	40	17	20
13	2.5	6.7	18	3.0	55	24	20	40	29	32	14	17
14	2.4	6.7	18	3.2	39	22	21	41	25	27	11	15
15	2.2	6.7	18	4.4	32	21	21	40	22	20	9.8	16
16	2.4	6.4	15	7.8	27	20	22	47	17	16	8.4	68
17	2.7	9.1	11	8.8	23	22	23	36	13	17	8.4	88
18	3.9	38	10	8.8	23	20	26	32	10	13	5.6	56
19	5.3	24	10	9.8	38	19	25	85	8.8	9.3	4.8	38
20	5.3	18	8.8	8.8	417	17	26	106	11	8.1	4.4	32
21	5.6	14	7.0	8.4	172	17	27	61	11	17	3.5	26
22	6.0	12	6.7	8.8	119	17	23	61	9.3	9.8	3.0	23
23	6.0	11	7.0	7.8	99	17	23	68	7.0	6.7	2.5	19
24	7.0	17	8.8	6.7	92	17	25	56	5.3	7.8	2.6	15
25	23	38	8.1	6.4	81	16	23	47	5.1	19	2.4	14
26	18	25	5.6	6.4	66	15	20	38	4.2	17	2.1	13
27	10	21	6.0	6.7	58	14	17	33	3.5	11	2.0	11
28	7.0	33	6.7	7.8	51	14	17	88	2.9	34	1.8	9.8
29	6.0	31	8.4	7.0	---	14	17	94	2.5	45	1.8	8.4
30	5.6	24	9.3	6.4	---	17	17	96	2.2	20	2.7	8.1
31	5.6	---	8.8	5.6	---	24	---	96	---	12	4.2	---
TOTAL	158.0	426.5	407.2	205.8	1818.4	741	605	1451	1139.8	2000.7	384.1	926.3
MEAN	5.10	14.2	13.1	6.64	64.9	23.9	20.2	46.8	38.0	64.5	12.4	30.9
MAX	23	38	21	9.8	417	42	27	106	127	316	56	88
MIN	2.2	5.3	5.6	3.0	4.8	14	16	17	2.2	6.7	1.8	7.0
CFSM	.07	.19	.18	.09	.87	.32	.27	.63	.51	.87	.17	.41
IN.	.08	.21	.20	.10	.91	.37	.30	.72	.57	1.00	.19	.46

CAL YR 1980 TOTAL 33480.1 MEAN 91.5 MAX 2040 MIN 1.3 CFSM 1.23 IN 16.70
WTR YR 1981 TOTAL 10263.8 MEAN 28.1 MAX 417 MIN 1.8 CFSM .38 IN 5.12

02032400 BUCK MOUNTAIN CREEK NEAR FREE UNION, VA

LOCATION.--Lat 38°09'16", long 78°32'22", Albemarle County, Hydrologic Unit 02080204, on left bank at downstream side of bridge on State Highway 665, 0.2 mi (0.3 km) downstream from Piney Creek, 1.6 mi (2.6 km) east of Free Union, and 2.0 mi (3.2 km) upstream from mouth.

DRAINAGE AREA.--37.0 mi² (95.8 km²).

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Datum of gage is 408.71 ft (124.575 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,120 ft³/s (88.4 m³/s) Apr. 9, 1980, gage height, 7.91 ft (2.411 m), from rating curve extended above 1,200 ft³/s (34 m³/s); minimum, 1.8 ft³/s (0.051 m³/s) Sept. 11-14, 1980, Aug. 27, 28, 29, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 22, 1979, reached a stage of 11.12 ft (3.389 m), from floodmarks, discharge, about 6,600 ft³/s (187 m³/s), from rating curve extended above 1,200 ft³/s (34 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 20	0045	852	24.1	4.47	1.362	Aug. 31	2345	*1190	33.7	5.18	1.579

Minimum discharge, 1.8 ft³/s (0.051 m³/s) Aug. 27, 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	5.3	12	6.9	8.2	26	12	19	21	22	5.0	96
2	3.6	5.0	11	7.3	29	25	12	13	36	50	4.6	12
3	3.3	5.1	10	10	25	23	11	12	32	58	6.2	76
4	3.9	7.5	9.4	13	20	19	10	11	41	157	12	74
5	3.6	8.6	9.1	6.4	17	23	12	9.9	32	97	6.5	46
6	3.5	6.7	9.0	5.8	13	20	13	9.9	26	92	17	36
7	3.3	6.3	8.6	6.5	11	19	10	9.9	23	41	28	54
8	3.0	6.1	8.5	6.9	9.8	19	11	9.1	18	26	31	35
9	3.0	6.2	9.0	5.6	11	16	13	8.7	15	19	13	30
10	2.7	7.7	9.0	5.5	17	15	13	11	17	15	8.7	20
11	2.7	6.5	8.3	4.5	152	15	11	37	14	14	7.4	17
12	2.4	5.8	7.9	3.8	66	15	11	25	11	12	8.2	14
13	2.3	5.5	7.8	3.0	39	15	14	19	12	10	6.2	11
14	2.4	5.7	7.5	4.2	29	13	13	17	16	9.1	5.3	9.9
15	2.7	6.0	7.4	6.2	21	13	13	17	10	7.8	5.0	14
16	2.8	6.3	7.5	8.8	18	15	12	19	8.2	7.8	4.6	44
17	2.7	9.4	7.3	7.4	17	16	13	17	6.5	8.7	4.0	36
18	3.2	27	7.4	6.0	18	12	15	16	5.9	6.9	3.4	23
19	6.4	14	7.5	7.4	52	13	13	32	5.6	6.2	3.4	17
20	4.7	11	10	8.8	306	12	14	38	6.5	6.2	3.4	14
21	3.9	9.3	7.2	9.4	109	12	12	32	7.8	9.9	3.2	13
22	3.6	8.2	6.4	10	69	12	12	26	5.6	6.2	2.9	11
23	3.8	7.8	7.0	8.8	50	12	12	20	4.6	5.3	2.9	9.5
24	4.2	21	7.6	8.0	50	11	13	17	4.0	7.4	2.5	8.7
25	20	23	9.8	7.2	43	11	11	14	4.0	12	2.3	8.7
26	12	15	6.9	8.0	38	11	10	12	3.4	8.2	2.0	7.8
27	7.5	14	7.3	9.8	31	9.9	11	11	2.7	6.9	2.0	7.4
28	6.8	22	7.5	8.8	28	9.5	11	37	2.5	23	2.0	6.5
29	6.1	18	8.0	8.0	---	9.5	9.9	35	2.5	16	1.8	6.2
30	5.5	15	7.9	7.0	---	14	12	28	2.5	7.4	2.5	6.5
31	5.5	---	12	5.2	---	14	---	24	---	5.9	38	---
TOTAL	145.1	315.0	261.8	224.2	1297.0	469.9	359.9	606.5	396.3	773.9	245.0	764.2
MEAN	4.68	10.5	8.45	7.23	46.3	15.2	12.0	19.6	13.2	25.0	7.90	25.5
MAX	20	27	12	13	306	26	15	38	41	157	38	96
MIN	2.3	5.0	6.4	3.0	8.2	9.5	9.9	8.7	2.5	5.3	1.8	6.2
CFSM	.13	.28	.23	.20	1.25	.41	.32	.53	.36	.68	.21	.69
IN.	.15	.32	.26	.23	1.30	.47	.36	.61	.40	.78	.25	.77

CAL YR 1980 TOTAL 15003.0 MEAN 41.0 MAX 1000 MIN 1.8 CFSM 1.11 IN 15.08
WTR YR 1981 TOTAL 5858.8 MEAN 16.1 MAX 306 MIN 1.8 CFSM .44 IN 5.89

02032515 SOUTH FORK RIVANNA RIVER NEAR CHARLOTTESVILLE, VA

LOCATION.--Lat 38°06'06", long 78°27'39", Albemarle County, Hydrologic Unit 02080204, on left bank 10 ft (3 m) downstream from upstream bridge on U.S. Highway 29, 0.4 mi (0.6 km) downstream from South Fork Rivanna River dam, 2.5 mi (4.0 km) northeast of Charlottesville city limits, and 2.9 mi (4.7 km) upstream from mouth.

DRAINAGE AREA.--260 mi^2 (673 km^2).

PERIOD OF RECORD.--August 1979 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 330 ft (101 m), from topographic map.

REMARKS.--Records good. Flow regulated by Rivanna Water and Sewer Authority at South Fork Rivanna and Sugar Hollow reservoirs, combined capacity, 6,540 acre-ft (8.06 hm^3), from which an average of 12.4 ft^3/s (0.35 m^3/s) is diverted for industrial and municipal use. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,200 ft^3/s (430 m^3/s) Sept. 6, 1979, gage height, 23.50 ft (7.163 m), from floodmarks, from rating curve extended above 12,000 ft^3/s (340 m^3/s); minimum daily, 11 ft^3/s (0.31 m^3/s) June 28-30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,450 ft^3/s (69.4 m^3/s) Feb. 20, gage height, 8.34 ft (2.542 m); minimum daily, 11 ft^3/s (0.31 m^3/s) June 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	46	98	72	38	168	94	108	150	53	29	174
2	41	44	92	68	185	154	89	92	250	280	21	59
3	39	44	83	62	154	144	81	74	250	342	26	164
4	37	64	74	55	110	136	79	68	267	706	79	200
5	36	75	74	39	90	154	85	64	245	447	53	265
6	36	62	79	51	76	154	94	64	200	663	110	150
7	32	55	77	59	70	130	79	74	186	335	148	166
8	32	53	77	50	69	117	75	70	150	215	287	188
9	32	57	83	46	68	113	79	59	129	164	164	250
10	29	64	87	45	74	108	89	64	125	136	102	140
11	28	53	75	38	659	108	83	139	117	210	79	106
12	22	48	75	32	420	104	87	160	89	152	138	87
13	19	46	77	25	225	106	108	113	79	112	104	70
14	17	50	74	26	182	98	102	110	87	92	75	59
15	20	51	70	41	144	94	94	108	70	72	57	62
16	22	57	70	55	140	98	89	113	53	57	50	330
17	24	74	64	55	130	94	91	104	41	60	39	308
18	28	184	60	46	129	91	102	98	31	53	29	225
19	48	127	60	59	146	91	92	144	29	44	25	162
20	55	92	59	62	1560	89	94	243	32	39	22	130
21	41	75	43	66	677	85	92	168	48	48	19	113
22	31	70	50	68	407	81	83	150	38	39	16	102
23	31	64	57	64	322	85	87	148	22	26	16	89
24	32	92	68	59	303	85	92	134	17	53	15	75
25	130	170	60	55	261	81	81	119	16	77	14	70
26	95	117	51	59	217	81	74	104	14	70	14	66
27	68	104	57	62	194	81	72	92	12	50	12	64
28	55	150	60	60	180	77	70	168	11	68	12	57
29	50	138	77	57	---	77	66	239	11	164	12	50
30	48	112	79	50	---	94	70	184	11	75	16	48
31	46	---	72	39	---	117	---	170	---	41	17	---
TOTAL	1263	2438	2182	1625	7230	3295	2573	3745	2780	4943	1800	4029
MEAN	40.7	81.3	70.4	52.4	258	106	85.8	121	92.7	159	58.1	134
MAX	130	184	98	72	1560	168	108	243	267	706	287	330
MIN	17	44	43	25	38	77	66	59	11	26	12	48
*FT^3/S	13.1	12.3	11.2	11.4	11.4	11.0	12.4	12.1	13.2	13.3	13.2	13.7

CAL YR 1980 TOTAL 99441 MEAN 272 MAX 4400 MIN 17 *FT^3/S 12.4
WTR YR 1981 TOTAL 37903 MEAN 104 MAX 1560 MIN 11 *FT^3/S 12.4

* Diversion, in cubic feet per second, by City of Charlottesville; records furnished by Rivanna Water and Sewer Authority.

02032680 NORTH FORK RIVANNA RIVER NEAR PROFFIT, VA

LOCATION.--Lat 38°05'16", long 78°24'44", Albemarle County, Hydrologic Unit 02080204, on left bank 50 ft (15 m) downstream from bridge on State Highway 649, 1.9 mi (3.1 km) southeast of Proffit, and 2.2 mi (3.5 km) upstream from confluence with South Fork.

DRAINAGE AREA.--176 mi^2 (456 km^2).

PERIOD OF RECORD.--April 1970 to current year.

GAGE.--Water-stage recorder. Datum of gage is 323.43 ft (98.581 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Rivanna Water and Sewer Authority diverts about 0.2 ft^3/s (0.01 m^3/s) daily for municipal water supply 7.8 mi (12.6 km) above station. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--11 years, 262 ft^3/s (7.420 m^3/s), 20.22 in/yr (514 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,800 ft^3/s (901 m^3/s) June 21, 1972, gage height, 30.4 ft (9.27 m), from floodmarks, from rating curve extended above 5,000 ft^3/s (140 m^3/s); minimum, 1.8 ft^3/s (0.051 m^3/s) Oct. 6, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,520 ft^3/s (43.0 m^3/s) at 1100 hours Feb. 20, gage height, 7.70 ft (2.347 m), no other peak above base of 1,500 ft^3/s (42 m^3/s); minimum daily, 12 ft^3/s (0.34 m^3/s) Aug. 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	34	61	101	35	186	92	76	108	74	33	420
2	22	34	56	50	126	170	90	80	190	168	28	90
3	21	34	52	35	122	156	86	65	210	250	26	144
4	20	35	48	30	83	144	79	59	240	550	33	166
5	19	47	47	29	70	138	77	55	210	400	31	238
6	18	47	45	30	56	142	82	53	180	730	36	128
7	18	43	44	34	52	138	86	55	160	300	100	154
8	18	36	44	39	48	130	80	50	154	250	192	128
9	17	37	45	36	47	120	79	45	128	140	79	126
10	17	42	49	35	49	112	78	47	110	112	53	77
11	18	40	47	33	667	110	74	79	106	108	41	62
12	17	37	43	31	402	106	70	204	86	84	47	52
13	17	35	43	29	170	104	79	114	71	68	52	46
14	17	35	42	28	125	100	84	92	99	62	41	41
15	17	35	41	32	111	96	80	82	96	56	35	39
16	17	37	40	39	93	94	76	88	80	50	32	304
17	17	41	40	38	83	92	74	77	62	48	28	156
18	17	146	39	37	80	90	84	68	52	46	24	96
19	19	86	39	38	84	88	77	110	44	41	22	65
20	21	63	34	41	1110	88	74	250	46	37	21	50
21	20	52	38	41	622	84	72	200	52	34	19	41
22	19	45	33	41	346	80	63	142	46	34	18	37
23	19	43	39	37	262	79	63	110	39	32	17	33
24	19	54	41	34	288	77	68	90	35	31	17	29
25	60	142	39	34	268	76	63	76	33	46	18	27
26	71	84	66	36	238	72	55	63	30	52	14	25
27	47	67	50	38	212	71	53	59	26	51	14	25
28	42	88	52	38	198	69	53	100	24	46	12	24
29	38	82	88	35	---	69	51	190	21	140	12	22
30	35	68	45	33	---	71	51	140	21	63	16	21
31	35	---	94	32	---	84	---	120	---	42	22	---
TOTAL	774	1669	1476	1164	6047	3236	2193	3039	2759	4145	1133	2866
MEAN	25.0	55.6	47.6	37.5	216	104	73.1	98.0	92.0	134	36.5	95.5
MAX	71	146	94	101	1110	186	92	250	240	730	192	420
MIN	17	34	30	28	35	69	51	45	21	31	12	21
CFSM	.14	.32	.27	.21	1.23	.59	.42	.56	.52	.76	.21	.54
IN.	.16	.35	.31	.25	1.28	.68	.46	.64	.58	.88	.24	.61

CAL YR 1980 TOTAL 71924 MEAN 197 MAX 3060 MIN 17 CFSM 1.12 IN 15.20
WTR YR 1981 TOTAL 30501 MEAN 83.6 MAX 1110 MIN 12 CFSM .48 IN 6.45

02034000 RIVANNA RIVER AT PALMYRA, VA

LOCATION.--Lat 37°51'28", long 78°15'58", Fluvanna County, Hydrologic Unit 02080204, on left bank 10 ft (3 m) upstream from bridge on U.S. Highway 15 at Palmyra, 0.5 mi (0.8 km) upstream from Cunningham Creek, and 15 mi (24 km) upstream from mouth.

DRAINAGE AREA.--664 mi^2 (1,720 km^2).

PERIOD OF RECORD.--October 1933 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1936(M). WSP 852: 1937. WSP 892: 1934-35. WSP 1303: 1945-46(M). WSP 1503: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 210.39 ft (64.127 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 24, 1942, water-stage recorder at site 200 ft (60 m) downstream at same datum. Oct. 24, 1942, to Dec. 18, 1947, nonrecording gage 10 ft (3 m) downstream at same datum.

REMARKS.--Records good. Some diurnal fluctuation at times mostly at low and medium flow by South Fork Rivanna River Reservoir. National Weather Service gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--48 years, 717 ft^3/s (20.31 m^3/s), 14.66 in/yr (372 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 86,000 ft^3/s (2,440 m^3/s) Aug. 20, 1969, gage height, 39.85 ft (12.146 m), from rating curve extended above 76,000 ft^3/s (2,200 m^3/s) on basis of contracted-opening measurement of peak flow and velocity-area study; minimum, 5.2 ft^3/s (0.15 m^3/s) Sept. 9-11, 1966, gage height, 2.13 ft (0.649 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,700 ft^3/s (133 m^3/s) Feb. 20, gage height, 9.57 ft (2.917 m), no peak above base of 6,000 ft^3/s (170 m^3/s); minimum, 37 ft^3/s (1.05 m^3/s) June 30, gage height, 2.37 ft (0.722 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	106	242	201	106	350	262	226	310	69	104	294
2	93	103	248	203	175	323	225	260	429	484	83	348
3	99	100	224	160	465	295	204	207	541	543	76	203
4	103	109	203	128	293	275	185	179	509	1210	143	375
5	93	156	189	109	226	299	186	167	588	1060	132	540
6	89	155	185	143	200	329	215	161	488	2100	120	403
7	88	133	182	131	186	289	212	162	430	1080	245	289
8	87	121	175	134	175	254	187	165	370	565	954	359
9	84	118	182	156	175	239	187	153	290	390	494	691
10	82	119	204	131	152	229	213	143	257	335	259	358
11	79	130	193	128	1230	223	208	207	264	281	181	238
12	75	120	174	114	1900	219	200	475	222	318	416	190
13	71	114	168	112	685	215	270	344	179	222	309	159
14	67	110	164	96	487	212	278	253	175	184	200	136
15	64	114	160	104	404	197	264	227	232	158	153	123
16	65	114	155	125	340	195	241	225	177	133	128	282
17	69	128	153	146	305	200	228	220	154	119	111	595
18	74	372	151	140	295	193	249	195	124	121	97	423
19	85	357	147	137	292	190	243	275	106	108	84	295
20	96	228	147	143	2740	192	227	517	96	94	77	223
21	106	183	130	146	2290	186	238	454	104	91	75	182
22	93	159	121	156	1130	180	214	348	119	92	71	159
23	83	146	133	156	769	178	201	295	104	90	62	143
24	82	153	139	149	700	181	209	262	85	91	60	125
25	158	320	154	131	590	177	208	229	73	164	59	109
26	317	308	145	131	496	171	185	202	67	159	59	103
27	204	229	158	140	428	167	174	177	60	133	52	99
28	143	255	155	146	381	168	174	177	49	114	49	96
29	127	296	162	140	---	164	169	379	41	238	46	89
30	115	246	202	128	---	183	162	392	38	263	191	82
31	111	---	165	120	---	316	---	351	---	146	162	---
TOTAL	3188	5302	5310	4284	17615	6989	6418	8027	6681	11155	5252	7711
MEAN	103	177	171	138	629	225	214	259	223	360	169	257
MAX	317	372	248	203	2740	350	278	517	588	2100	954	691
MIN	64	100	121	96	106	164	162	143	38	69	46	82
CFSM	.16	.27	.26	.21	.95	.34	.32	.39	.34	.54	.26	.39
IN.	.18	.30	.30	.24	.99	.39	.36	.45	.37	.62	.29	.43

CAL YR 1980 TOTAL 245915 MEAN 672 MAX 6640 MIN 64 CFSM 1.01 IN 13.78
WTR YR 1981 TOTAL 87932 MEAN 241 MAX 2740 MIN 38 CFSM .36 IN 4.93

02034500 WILLIS RIVER AT LAKESIDE VILLAGE, VA

LOCATION.--Lat 37°40'00", long 78°10'00", Cumberland County, Hydrologic Unit 02080205, on left bank 15 ft (5 m) upstream from bridge on State Highway 690, 0.4 mi (0.6 km) east of Lakeside Village, 6.9 mi (11.1 km) upstream from mouth, and 7.7 mi (12.4 km) downstream from Reynolds Creek.

DRAINAGE AREA.--262 mi^2 (679 km^2).

PERIOD OF RECORD.--April 1926 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1978, published as Willis River at Flanagan Mills.

REVISED RECORDS.--WSP 872: 1936-37. WSP 892: 1928-29, 1932-34(M). WSP 972: 1937, 1940. WSP 1203: 1929. WSP 1303: 1928-30(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 178.98 ft (54.553 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Jan. 3, 1935, nonrecording gage at site 1,300 ft (396 m) upstream at same datum.

REMARKS.--Records good. Regulation of flow from Trice Lake 0.4 mi (0.6 km) upstream, total capacity, about 1,100 acre-ft (1.36 hm^3), tributary to Willis River, slightly affects flow at gage. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--55 years, 252 ft^3/s (7.137 m^3/s), 13.06 in/yr (332 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 24,000 ft^3/s (680 m^3/s) June 22, 1972; maximum gage height, 29.8 ft (9.08 m) June 22, 1972, from floodmarks (backwater from James River); minimum discharge, 1.5 ft^3/s (0.042 m^3/s) Sept. 13, 14, 1966, gage height, 2.26 ft (0.689 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 585 ft^3/s (16.6 m^3/s) Feb. 12, gage height, 8.04 ft (2.451 m), no peak above base of 1,700 ft^3/s (48 m^3/s); minimum, 4.0 ft^3/s (0.11 m^3/s) July 2, gage height, 2.95 ft (0.899 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	81	144	103	90	123	162	77	62	4.6	25	27
2	52	78	138	99	113	121	150	76	56	4.8	17	24
3	60	76	140	95	174	113	144	71	55	18	12	22
4	72	81	132	72	140	110	130	65	55	49	13	21
5	72	104	119	50	128	114	121	61	51	93	12	22
6	60	124	118	45	110	138	186	59	69	173	12	28
7	55	108	108	54	110	139	238	58	74	208	12	40
8	52	98	103	62	118	128	192	64	137	145	270	173
9	49	94	105	64	128	118	164	64	132	89	412	189
10	46	89	109	66	124	112	157	61	83	58	243	110
11	44	85	111	64	262	107	151	68	61	56	135	75
12	44	84	107	64	544	103	140	83	45	31	129	54
13	43	82	103	60	421	99	141	78	34	19	117	38
14	42	82	99	60	282	94	150	68	29	15	80	30
15	40	91	97	66	214	90	149	59	25	13	61	26
16	42	100	94	76	179	87	146	52	21	10	51	31
17	44	104	94	77	160	92	136	48	19	8.8	41	38
18	44	147	93	78	150	94	132	44	16	7.4	33	43
19	56	196	91	80	145	92	129	95	14	6.8	27	36
20	64	168	89	84	180	89	129	169	13	5.9	23	30
21	67	147	82	90	283	85	147	160	14	5.6	21	25
22	62	133	78	103	298	84	148	128	18	4.8	20	22
23	60	122	78	119	244	86	133	97	15	4.8	18	18
24	58	121	74	123	207	108	127	76	12	5.0	17	16
25	88	158	76	115	179	118	130	64	10	30	17	15
26	136	174	78	112	157	111	123	67	9.2	47	15	14
27	119	163	81	114	141	103	106	50	7.1	49	14	13
28	98	163	88	111	129	98	94	44	5.9	49	12	12
29	90	174	96	104	---	93	85	108	5.0	37	11	12
30	85	159	106	98	---	94	80	101	5.0	59	11	12
31	82	---	109	75	---	136	---	77	---	42	14	---
TOTAL	1973	3586	3140	2583	5410	3279	4220	2392	1152.2	1348.5	1895	1216
MEAN	63.6	120	101	83.3	193	106	141	77.2	38.4	43.5	61.1	40.5
MAX	136	196	144	123	544	139	238	169	137	208	412	189
MIN	40	76	74	45	90	84	80	44	5.0	4.6	11	12
CFSM	.24	.46	.39	.32	.74	.41	.54	.30	.15	.17	.23	.16
IN.	.28	.51	.45	.37	.77	.47	.60	.34	.16	.19	.27	.17

CAL YR 1980 TOTAL 96103.0 MEAN 263 MAX 2000 MIN 25 CFSM 1.00 IN 13.65
WTR YR 1981 TOTAL 32194.7 MEAN 88.2 MAX 544 MIN 4.6 CFSM .34 IN 4.57

02035000 JAMES RIVER AT CARTERSVILLE, VA
(National stream-quality accounting network station)

LOCATION.--Lat 37°40'15", long 78°05'10", Goochland County, Hydrologic Unit 02080205, on left bank 200 ft (61 m) downstream from bridge on State Highway 45 between Pemberton and Cartersville, 1.8 mi (2.9 km) downstream from Willis River, and at mile 156.4 (251.6 km).

DRAINAGE AREA.--6,257 mi² (16,206 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1898 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1203: 1901-2(M), 1923-25(M), 1928(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 163.90 ft (49.957 m) National Geodetic Vertical Datum of 1929. Prior to June 4, 1927, nonrecording gage at same site and datum.

REMARKS.--Records good. Moderate diurnal fluctuation caused by powerplants above station. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--83 years, 7,057 ft³/s (199.9 m³/s), 15.32 in/yr (389 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 362,000 ft³/s (10,300 m³/s) June 22, 1972, gage height, 37.87 ft (11.543 m), from floodmarks, from rating curve extended above 160,000 ft³/s (4,500 m³/s) on basis of slope-conveyance study; minimum, 316 ft³/s (8.95 m³/s) Sept. 13, 14, 1966, gage height, 0.02 ft (0.006 m); minimum daily, 330 ft³/s (9.35 m³/s) Sept. 14, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,700 ft³/s (841 m³/s) May 30, gage height, 11.48 ft (3.499 m), no peak above base of 40,000 ft³/s (1,100 m³/s); minimum, 807 ft³/s (22.9 m³/s) Aug. 28, 29, 30; minimum gage height, 0.39 ft (0.119 m) June 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1260	1500	2410	1620	1260	4520	4270	3220	13200	1330	1630	1030
2	1500	1770	2500	1850	1480	3940	3380	3540	10800	1360	1330	1690
3	1530	1590	3080	1540	1960	3660	3400	2810	11900	2190	1580	1200
4	1280	1390	2140	1690	2670	3480	3470	2180	18100	3320	1290	1200
5	1480	1640	1640	1420	2030	3200	3300	2590	17700	7010	1360	2180
6	1180	1750	2090	1010	3000	3690	3710	2890	16100	7010	1310	3960
7	1320	1860	2110	1440	2110	2920	3620	2840	12000	8820	1340	6700
8	1300	1600	1770	1360	2110	3220	3510	2010	9880	6580	9100	8180
9	1200	1620	1500	1120	2130	3100	3220	2240	9530	4540	7870	5140
10	1320	1570	1830	1120	1910	3370	3170	2160	8290	4160	3640	3960
11	1230	1430	2060	1160	3120	3150	3100	2280	6920	3920	2580	2600
12	1180	1390	2180	1120	7910	2990	2980	2660	5540	4830	2420	2220
13	1160	1240	1740	1300	7890	2360	2950	3320	5210	3140	3530	2120
14	995	1660	1820	1580	7940	2860	3420	2450	4620	2850	2890	1760
15	1100	1340	1640	1470	6560	2470	3580	2030	4120	2840	2000	1710
16	1150	1440	1740	1580	4570	1880	3290	2350	4700	2090	1560	1480
17	1220	1430	1690	1190	3960	1940	2840	2810	3980	2140	1380	2210
18	1130	1360	1690	1120	3540	2380	3230	2310	3120	2040	1290	2530
19	1330	2140	1420	1220	3340	2150	3030	2910	2550	2090	1230	2230
20	1470	2260	1580	1590	4940	2010	3350	3950	2280	1680	1080	1890
21	1270	2780	1410	1530	11700	2060	4400	3910	1750	1320	1020	1680
22	1330	2370	1500	1510	7600	1840	4450	7630	2010	1820	1050	1560
23	1400	2040	1640	1610	6440	1950	4690	10200	2160	1540	926	1530
24	1520	2080	1440	1640	6280	2150	4740	8310	2410	1410	955	1280
25	1460	2260	1440	1450	5880	2240	4800	6260	1740	1710	898	1230
26	1920	3000	1410	1500	6110	1940	4210	4720	1440	2870	987	1190
27	2160	2930	1260	1720	6480	1940	3800	3980	1490	2590	859	1150
28	1780	3410	1470	1620	5210	1980	3980	3720	1510	2070	813	1060
29	1640	3710	1640	1620	---	1880	3960	4860	1160	1980	818	1070
30	2050	3290	1580	1420	---	2170	3360	26200	1110	2080	817	1080
31	1830	---	1530	1200	---	2580	---	18400	---	2150	1050	---
TOTAL	43695	59850	54950	44320	130130	82020	109210	151740	187320	95480	60603	68820
MEAN	1410	1995	1773	1430	4648	2646	3640	4895	6244	3080	1955	2294
MAX	2160	3710	3080	1850	11700	4520	4800	26200	18100	8820	9100	8180
MIN	995	1240	1260	1010	1260	1840	2840	2010	1110	1320	813	1030
CFSM	.23	.32	.28	.23	.74	.42	.58	.78	1.00	.49	.31	.37
IN.	.26	.36	.33	.26	.77	.49	.65	.90	1.11	.57	.36	.41

CAL YR 1980 TOTAL 2529915 MEAN 6912 MAX 60900 MIN 995 CFSM 1.11 IN 15.04
WTR YR 1981 TOTAL 1088138 MEAN 2981 MAX 26200 MIN 813 CFSM .48 IN 6.47

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1948, 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to January 1976, October 1980 to May 1981 (discontinued).
WATER TEMPERATURES: April 1968 to January 1976, October 1980 to May 1981 (discontinued).
SUSPENDED-SEDIMENT DISCHARGE: October 1980 to May 1981 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 459 micromhos Oct. 8, 1970; minimum, 43 micromhos Mar. 21, 1975.
WATER TEMPERATURES: Maximum, 36.0°C July 2, 1968; minimum, 0.0°C on several days during winter period.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 350 mg/L May 30, 1981; minimum daily mean, 1 mg/L Oct. 22, 23, 1980.
SEDIMENT LOADS: Maximum daily, 24,700 tons (22,400 tonnes) May 30, 1981; minimum daily, 3.6 tons (3.3 tonnes) Oct. 22, 1980.

EXTREMES FOR PERIOD OCTOBER 1980 to May 1981.--
SPECIFIC CONDUCTANCE: Maximum daily, 360 micromhos Jan. 20; minimum daily, 110 micromhos Feb. 22.
WATER TEMPERATURES: Maximum daily, 25.0°C May 26; minimum daily, 0.0°C Dec. 27, Jan. 11-13.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 350 mg/L May 30; minimum daily mean, 1 mg/L Oct. 22, 23.
SEDIMENT LOADS: Maximum daily, 24,700 tons (22,400 tonnes) May 30; minimum daily, 3.6 tons (3.3 tonnes) Oct. 22.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT												
09...	1200	1100	300	7.6	19.0	.50	9.5	17	30	100	33	31
20...	0945	1500	267	6.9	16.5	--	9.2	--	--	91	21	27
NOV												
13...	1200	1230	260	8.8	10.0	1.0	12.5	K5	K11	86	18	25
DEC												
16...	1200	1700	209	8.3	5.5	.70	13.3	33	20	76	20	23
JAN												
15...	1300	1420	337	8.4	2.5	1.6	15.0	K5	K10	110	25	33
FEB												
11...	1230	3220	310	8.0	6.5	1.8	13.2	22	38	96	26	30
12...	0910	8360	193	7.4	2.0	8.0	12.4	--	--	60	21	18
12...	1445	9410	218	7.6	2.5	5.0	12.9	--	--	69	20	21
12...	1610	9290	210	7.6	2.0	--	12.8	--	--	--	--	--
13...	1045	7840	190	7.6	2.0	3.6	12.8	--	--	62	23	19
21...	0830	13100	133	7.4	8.0	--	12.0	--	--	44	9	13
MAR												
10...	1145	3810	150	8.0	8.5	1.3	11.8	K3	K4	51	11	15
APR												
15...	1200	3510	159	7.8	16.0	.50	9.7	25	110	58	16	17
MAY												
19...	1200	2840	209	7.8	18.0	2.1	10.0	51	74	70	7	21
22...	1500	10600	220	7.0	19.0	--	8.4	--	--	81	13	25
30...	1100	29100	188	7.6	22.0	--	6.9	--	--	73	20	23
30...	1700	29000	165	7.6	21.0	--	7.1	--	--	69	19	22
JUN												
03...	1200	11300	130	7.8	19.5	16	8.2	210	500	45	8	14
JUL												
09...	1200	4480	178	7.6	28.5	18	6.9	--	45	60	12	18
AUG												
14...	1200	2740	138	7.6	27.0	22	7.6	--	130	47	13	13
SEP												
03...	1230	1170	220	8.2	25.0	2.7	8.5	K11	88	65	11	20
30...	1245	1080	243	9.7	19.5	9.6	12.2	--	--	74	9	23

K Result based on colony count outside optimal range.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE TOTAL (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)
OCT												
09...	6.1	17	3.5	70	22	30	.2	8.0	183	162	<.010	<.010
20...	5.7	16	3.4	70	20	24	.2	7.5	161	146	<.010	<.010
NOV												
13...	5.7	15	3.0	68	18	21	.2	5.4	153	135	<.010	<.010
DEC												
16...	4.5	9.3	1.9	56	18	15	.1	5.7	135	113	<.010	<.010
JAN												
15...	6.2	20	3.6	83	24	30	.1	5.6	193	173	.010	<.010
FEB												
11...	5.1	16	2.5	70	24	29	.1	4.0	174	154	.010	.010
12...	3.7	11	2.2	39	15	17	<.1	7.8	113	100	.020	<.010
12...	4.0	13	2.3	49	18	18	<.1	6.3	135	116	.020	<.010
12...	--	--	--	--	--	--	--	--	--	--	--	--
13...	3.5	10	2.1	39	16	15	<.1	6.6	118	96	.020	.010
21...	2.7	7.6	2.0	35	12	10	<.1	8.6	93	78	.050	.020
MAR												
10...	3.3	7.0	1.5	40	12	9.1	<.1	3.8	83	78	.010	.010
APR												
15...	3.7	8.8	1.9	40	12	12	.1	5.0	91	87	.010	.010
MAY												
19...	4.3	12	2.4	63	15	17	.1	4.3	122	116	<.010	<.010
22...	4.6	10	2.2	68	17	19	.1	5.9	141	125	.010	.010
30...	3.8	6.7	1.7	53	17	12	<.1	5.0	132	101	.010	<.010
30...	3.5	4.8	1.8	50	15	9.5	.1	5.1	119	92	.020	.020
JUN												
03...	2.4	3.1	1.6	37	12	4.8	<.1	6.2	83	68	--	--
JUL												
09...	3.7	11	2.3	48	13	13	<.1	7.3	110	99	--	--
AUG												
14...	3.4	7.9	2.4	34	11	11	.1	9.1	97	80	--	--
SEP												
03...	3.6	15	2.7	54	14	21	.2	6.6	135	117	--	--
30...	3.9	15	2.6	65	15	25	.1	4.4	140	128	--	--

< Actual value is known to be less than the value shown.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN DISSOLVED (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, TOTAL (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)
OCT												
09...	.48	.46	.020	.020	.37	.18	.64	.85	.190	.160	.140	.140
20...	.23	.24	<.010	<.010	.19	.15	.39	.42	.180	.150	.100	.090
NOV												
13...	.09	.09	.010	.020	.25	.25	.34	.34	.140	.130	.120	.120
DEC												
16...	.32	.30	.020	.020	.34	.16	.46	.66	.100	.090	.080	.080
JAN												
15...	.38	.37	.020	.020	.20	.19	.56	.58	.160	.140	.180	.120
FEB												
11...	.26	.26	.070	.050	.40	<.10	--	.66	.260	.230	.200	.200
12...	.34	.35	.160	.140	1.60	.76	1.1	1.9	.430	.080	.110	.050
12...	.38	.37	.080	.070	1.40	.48	.85	1.8	.460	.110	.140	.080
12...	--	--	--	--	--	--	--	--	--	--	--	--
13...	.36	.36	.060	.070	.94	.28	.64	1.3	.260	.080	.090	.050
21...	.51	.49	.170	.150	.95	.27	.76	1.5	.530	.080	.130	.060
MAR												
10...	.37	.39	.050	.060	.24	<.10	--	.61	.080	.060	.060	.050
APR												
15...	.39	.39	.070	.060	<.10	<.10	--	--	.160	.120	.080	.070
MAY												
19...	.39	.42	.050	.060	.79	.39	.81	1.2	.160	.120	.130	.060
22...	.42	.42	.070	.060	1.40	.27	.69	1.8	.430	.100	.070	.070
30...	.31	.30	.030	.030	1.60	.37	.67	1.9	.730	.060	.070	.070
30...	.47	.39	.060	.050	1.70	.31	.70	2.2	.580	.050	.090	.060
JUN												
03...	.32	.32	.020	.020	.42	.41	.73	.74	.130	.070	--	--
JUL												
09...	.45	.44	.040	.040	.56	.38	.82	1.0	.140	.070	--	--
AUG												
14...	.35	.36	.030	.030	.55	.23	.59	.90	.120	.060	--	--
SEP												
03...	.24	.26	.070	.070	.47	.32	.58	.71	.100	.080	--	--
30...	.09	.08	.030	.020	.63	.28	.36	.72	.130	.030	--	--

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02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)	ALUMINUM, DISSOLVED (UG/L AS AL)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)
OCT											
09...	200	100	--	--	--	--	<1	--	5	--	--
20...	100	100	--	--	--	--	<1	--	13	--	--
NOV											
13...	200	100	1	1	100	50	<1	<1	10	<10	<1
DEC											
16...	200	200	--	--	--	--	2	--	4	--	--
JAN											
15...	200	100	--	--	--	--	2	--	9	--	--
FEB											
11...	200	100	1	<1	100	50	2	<1	20	10	<1
12...	4500	200	--	--	--	--	1	--	32	--	--
12...	3800	200	--	--	--	--	1	--	23	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
13...	2100	100	--	--	--	--	1	--	21	--	--
21...	5700	200	--	--	--	--	2	--	27	--	--
MAR											
10...	200	100	--	--	--	--	2	--	<10	--	--
APR											
15...	400	200	--	--	--	--	1	--	6	--	--
MAY											
19...	200	100	<1	<1	100	40	4	2	<10	<10	1
22...	2600	200	--	--	--	--	3	--	13	--	--
30...	4600	200	--	--	--	--	2	--	12	--	--
30...	3800	100	--	--	--	--	1	--	13	--	--
JUN											
03...	--	--	--	--	--	--	--	--	--	--	--
JUL											
09...	--	--	--	--	--	--	--	--	--	--	--
AUG											
14...	--	--	2	1	100	40	1	2	30	20	<1
SEP											
03...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	COBALT, DIS- SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU)	COPPER, DIS- SOLVED (UG/L AS CU)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)
OCT											
09...	--	3	--	260	30	13	--	20	7	.6	--
20...	--	3	--	310	60	6	--	20	10	<.1	--
NOV											
13...	<1	2	2	410	100	1	<1	20	8	.3	<.1
DEC											
16...	--	1	--	250	90	<1	--	20	6	<.1	--
JAN											
15...	--	1	--	190	50	4	--	10	7	<.1	--
FEB											
11...	<1	4	1	490	50	4	2	30	9	<.1	<.1
12...	--	15	--	15000	160	20	--	690	90	.1	--
12...	--	10	--	8400	130	20	--	530	40	.1	--
12...	--	--	--	--	--	--	--	--	--	--	--
13...	--	8	--	4900	50	11	--	210	20	.2	--
21...	--	15	--	11000	300	20	--	370	20	.1	--
MAR											
10...	--	3	--	410	100	6	--	40	10	<.1	--
APR											
15...	--	4	--	660	100	9	--	60	10	<.1	--
MAY											
19...	1	4	2	380	60	3	<1	60	10	.1	<.1
22...	--	10	--	6000	80	16	--	470	10	.2	--
30...	--	16	--	11000	20	260	--	560	3	.1	--
30...	--	15	--	8700	60	120	--	580	1	<.1	--
JUN											
03...	--	--	--	--	--	--	--	--	--	--	--
JUL											
09...	--	--	--	--	--	--	--	--	--	--	--
AUG											
14...	<1	9	1	1600	140	11	<1	60	8	.1	<.1
SEP											
03...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)
OCT											
09...	6	--	--	--	--	--	20	--	4.5	3.7	--
20...	4	--	--	--	--	--	30	--	4.6	3.8	--
NOV											
13...	8	5	<1	<1	<1	<1	20	<4	13	12	.3
DEC											
16...	7	--	--	--	--	--	40	--	6.0	5.2	--
JAN											
15...	2	--	--	--	--	--	30	--	5.2	4.1	--
FEB											
11...	4	<1	<1	<1	<1	<1	20	<4	4.7	3.7	.6
12...	15	--	--	--	--	--	40	--	10	4.6	--
12...	12	--	--	--	--	--	40	--	10	4.7	--
12...	--	--	--	--	--	--	--	--	--	--	--
13...	10	--	--	--	--	--	20	--	7.1	4.4	--
21...	15	--	--	--	--	--	30	--	--	--	--
MAR											
10...	2	--	--	--	--	--	80	--	3.1	2.6	--
APR											
15...	4	--	--	--	--	--	80	--	3.8	3.2	--
MAY											
19...	10	3	<1	<1	<1	<1	30	<4	3.6	3.5	--
22...	18	--	--	--	--	--	30	--	9.5	5.5	--
30...	18	--	--	--	--	--	80	--	14	10	--
30...	14	--	--	--	--	--	70	--	16	6.3	--
JUN											
03...	--	--	--	--	--	--	--	--	4.3	--	--
JUL											
09...	--	--	--	--	--	--	--	--	6.3	--	--
AUG											
14...	6	1	<1	<1	<1	<1	10	<4	--	6.0	1.0
SEP											
03...	--	--	--	--	--	--	--	--	6.0	--	--
30...	--	--	--	--	--	--	--	--	4.6	--	--

< Actual value is known to be less than the value shown.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CARBON, INORGANIC, TOTAL (MG/L AS C)	CARBON, INORGANIC, DISSOLVED (MG/L AS C)	PCB, TOTAL (UG/L)	ALDRIN, TOTAL (UG/L)	ATRATONE TOTAL (UG/L)	ATRAZINE, TOTAL (UG/L)	AMETRYNE TOTAL	CHLORDANE, TOTAL (UG/L)	CYANAZINE TOTAL (UG/L)	CYPRAZINE TOTAL (UG/L)	DDD, TOTAL (UG/L)
OCT											
09...	25	15	<.10	<.01	<.10	<.10	<.10	<.10	<.10	<.10	<.01
20...	20	14	<.10	<.01	<.10	<.10	<.10	<.10	<.10	<.10	<.01
NOV											
13...	13	14	<.10	.00	<.10	<.10	<.10	<.10	<.10	<.10	<.01
DEC											
16...	16	15	<.10	<.01	<.10	<.10	<.10	<.10	<.10	<.10	<.01
JAN											
15...	23	24	--	--	--	--	--	--	--	--	--
FEB											
11...	18	18	<.10	<.01	<.10	<.10	<.10	<.10	<.10	<.10	<.01
12...	14	10	<.10	<.01	<.10	<.10	<.10	<.10	<.10	<.10	<.01
12...	14	12	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--
13...	16	16	--	--	--	--	--	--	--	--	--
21...	--	--	<.10	<.01	<.10	<.10	<.10	<.10	<.10	<.10	<.01
MAR											
10...	13	11	<.10	<.01	<.10	<.10	<.10	<.10	<.10	<.10	<.01
APR											
15...	12	12	<.10	<.01	<.10	.10	<.10	<.10	<.10	<.10	<.01
MAY											
19...	16	17	<.10	<.01	<.10	<.10	<.10	<.10	<.10	<.10	<.01
22...	16	15	<.10	<.01	<.10	<.10	<.10	<.10	<.10	<.10	<.01
30...	16	14	--	--	--	--	--	--	--	--	--
30...	19	18	<.10	<.01	--	--	--	<.10	--	--	<.01
JUN											
03...	--	--	--	--	--	--	--	--	--	--	--
JUL											
09...	--	--	--	--	--	--	--	--	--	--	--
AUG											
14...	--	--	--	--	--	--	--	--	--	--	--
SEP											
03...	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	DDE, TOTAL (UG/L)	DDT, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	ENDO-SULFAN, TOTAL (UG/L)	ENDRIN, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	LINDANE TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PER-THANE TOTAL (UG/L)
OCT												
09...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
20...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
NOV												
13...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
DEC												
16...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
JAN												
15...	--	--	--	--	--	--	--	--	--	--	--	--
FEB												
11...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
12...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
21...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
MAR												
10...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
APR												
15...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
MAY												
19...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
22...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.01	<.10	<.01
JUN												
03...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
09...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
14...	--	--	--	--	--	--	--	--	--	--	--	--
SEP												
03...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	PROME-TONE TOTAL (UG/L)	PROME-TRYNE TOTAL (UG/L)	PRO-PAZINE TOTAL (UG/L)	SILVEX, TOTAL (UG/L)	SIME-TONE TOTAL (UG/L)	SIME-TRYNE TOTAL (UG/L)	SIMA-ZINE TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)
OCT												
09...	<.1	<.1	<.10	--	<.10	<.1	.01	<.01	--	--	--	--
20...	<.1	<.1	<.10	<.01	<.10	<.1	<.01	<.01	.01	<.01	.04	--
NOV												
13...	<.1	<.1	<.10	<.01	<.10	<.1	<.01	<.01	<.01	<.01	<.01	13
DEC												
16...	<.1	<.1	<.10	<.01	<.10	<.1	<.01	<.10	<.01	<.01	<.01	--
JAN												
15...	--	--	--	--	--	--	--	--	--	--	--	130
FEB												
11...	<.1	<.1	<.10	<.01	<.10	<.1	.01	<.10	<.01	<.01	<.01	--
12...	<.1	<.1	<.10	<.01	<.10	<.1	<.01	<.10	<.01	<.01	<.01	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
12...	--	--	--	--	--	--	--	--	--	--	--	--
13...	--	--	--	--	--	--	--	--	--	--	--	--
21...	<.1	<.1	<.10	<.01	<.10	<.1	.02	<.10	<.01	<.01	<.01	--
MAR												
10...	<.1	<.1	<.10	<.01	<.10	<.1	<.01	<.10	<.01	<.01	<.01	450
APR												
15...	<.1	<.1	<.10	<.01	<.10	<.1	.06	<.10	<.01	<.01	<.01	--
MAY												
19...	<.1	<.1	<.10	<.01	<.10	<.1	<.01	<.10	<.01	<.01	<.01	26
22...	<.1	<.1	<.10	<.01	<.10	<.1	.02	<.10	<.01	<.01	<.01	--
30...	--	--	--	--	--	--	--	--	--	--	--	--
30...	--	--	--	<.01	--	--	--	<.01	<.01	<.01	<.01	--
JUN												
03...	--	--	--	--	--	--	--	--	--	--	--	2300
JUL												
09...	--	--	--	--	--	--	--	--	--	--	--	52
AUG												
14...	--	--	--	--	--	--	--	--	--	--	--	870
SEP												
03...	--	--	--	--	--	--	--	--	--	--	--	1600
30...	--	--	--	--	--	--	--	--	--	--	--	160000

< Actual value is known to be less than the value shown.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CHLOR-A PHYTO-PLANK-TON CHROMO FLUOROM (UG/L)	CHLOR-B PHYTO-PLANK-TON CHROMO FLUOROM (UG/L)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM
OCT											
09...	.000	.000	4	--	--	--	--	--	--	--	--
20...	.000	.000	5	--	--	--	--	--	--	--	--
NOV											
13...	2.16	.000	3	--	--	--	--	27	--	--	--
DEC											
16...	.080	.000	5	--	--	--	--	46	--	--	--
JAN											
15...	.630	.000	3	--	--	--	--	100	--	--	--
FEB											
11...	4.74	.000	45	--	--	--	--	75	--	--	--
12...	43.2	1.02	226	56	70	81	86	92	98	99	100
12...	42.1	4.74	205	--	--	--	--	84	--	--	--
12...	--	--	153	52	67	77	89	95	99	100	--
13...	6.98	.000	85	--	--	--	--	76	--	--	--
21...	22.0	.000	224	--	--	--	--	88	--	--	--
MAR											
10...	1.60	.000	10	--	--	--	--	100	--	--	--
APR											
15...	2.67	.000	17	--	--	--	--	75	--	--	--
MAY											
19...	--	.000	12	--	--	--	--	86	--	--	--
22...	8.53	.000	210	46	58	69	80	92	98	100	--
30...	12.6	.000	353	38	47	57	69	80	91	99	100
30...	10.3	.000	443	--	--	--	--	86	--	--	--
JUN											
03...	--	--	60	--	--	--	--	67	--	--	--
JUL											
09...	--	--	40	--	--	--	--	97	--	--	--
AUG											
14...	--	--	28	--	--	--	--	99	--	--	--
SEP											
03...	--	--	4	--	--	--	--	100	--	--	--
30...	170	<.010	3	--	--	--	--	100	--	--	--

< Actual value is known to be less than the value shown.

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), OCTOBER 1980 TO MAY 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	310	291	323	249	313	198	224	165
2	310	296	303	256	300	178	212	175
3	293	302	290	267	275	180	222	160
4	300	308	271	276	300	191	253	157
5	305	311	255	285	295	168	261	160
6	300	300	262	274	325	153	264	175
7	305	295	256	276	355	139	250	186
8	315	292	277	308	325	143	221	170
9	300	284	257	290	340	152	218	180
10	320	284	252	290	350	157	212	170
11	321	280	241	292	320	180	198	180
12	310	272	237	298	219	185	198	178
13	298	264	230	283	202	187	176	175
14	296	282	216	317	345	187	176	170
15	297	287	224	320	320	205	165	163
16	302	310	220	325	240	203	175	170
17	312	320	233	323	205	210	177	193
18	322	287	233	300	230	208	175	200
19	---	252	235	340	255	230	180	209
20	295	242	245	360	200	220	180	215
21	275	245	235	263	123	210	190	215
22	280	253	255	308	110	192	225	220
23	286	291	261	250	120	187	220	180
24	287	297	254	243	144	185	240	195
25	290	303	258	275	163	192	245	200
26	275	295	264	260	180	193	240	205
27	254	290	256	268	220	191	200	203
28	253	274	256	300	220	200	180	195
29	263	305	256	300	---	210	190	200
30	268	313	246	318	---	207	175	165
31	277	---	234	315	---	212	---	168
MEAN	294	288	253	291	250	189	207	184

WTR YR 1981 MEAN 244 MAX 360 MIN 110

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

TEMPERATURE, WATER (DEG. C), OCTOBER 1980 TO MAY 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
1	20.5	13.0	7.0	3.0	4.0	11.5	15.5	19.5
2	20.5	14.0	8.0	3.0	5.0	11.0	14.5	18.5
3	21.0	11.0	7.0	3.5	3.5	10.0	17.5	19.5
4	17.0	11.5	6.5	2.5	2.5	8.5	18.5	20.0
5	17.0	13.0	6.0	.5	2.5	8.0	17.0	22.0
6	17.0	10.5	7.5	1.0	2.0	8.0	15.0	21.5
7	17.0	12.5	9.0	1.0	3.5	8.5	16.0	21.0
8	17.0	14.0	8.5	1.0	4.0	8.5	17.0	21.0
9	19.0	15.5	10.5	1.0	4.0	8.5	16.0	20.0
10	19.5	14.0	10.5	1.5	4.0	8.5	18.0	19.5
11	19.0	11.0	8.0	.0	6.0	8.0	19.0	21.0
12	18.0	9.5	7.0	.0	2.5	9.0	21.0	22.5
13	18.0	10.0	7.0	.0	2.0	10.5	17.0	21.5
14	14.0	9.5	7.5	3.0	3.5	10.0	17.5	22.5
15	14.5	11.0	5.5	2.5	3.5	10.5	17.0	23.0
16	15.0	12.0	5.5	3.0	5.0	9.0	18.0	23.0
17	17.5	8.5	6.5	1.5	6.0	8.5	17.0	22.0
18	19.5	8.0	5.0	2.5	8.5	9.5	19.0	20.0
19	18.0	8.0	6.0	4.0	9.5	7.5	20.0	18.0
20	17.0	6.5	4.0	3.0	9.5	8.5	19.0	18.0
21	16.5	6.0	2.5	2.0	9.0	8.5	17.5	18.5
22	16.0	6.0	1.0	4.0	10.0	8.5	17.5	19.0
23	16.0	7.0	1.0	3.5	10.0	8.5	18.5	20.0
24	15.0	7.0	3.0	3.5	9.5	10.0	18.0	21.5
25	14.5	8.0	1.0	4.0	9.5	11.0	16.5	23.5
26	14.0	7.0	1.0	6.0	9.5	12.0	17.0	25.0
27	12.0	7.0	.0	4.5	9.5	11.5	20.0	24.0
28	12.5	7.0	1.0	6.0	10.5	13.0	21.0	21.5
29	13.0	6.5	3.0	6.0	---	13.5	22.0	19.5
30	12.5	7.0	4.0	5.0	---	14.5	22.0	21.0
31	12.0	---	2.5	4.0	---	17.0	---	21.0
MEAN	16.5	9.5	5.0	3.0	6.0	10.0	18.0	21.0

WTR YR 1981 MEAN 11.0 MAX 25.0 MIN .0

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

SUSPENDED SEDIMENT, OCTOBER 1980 TO MAY 1981

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	7	24	2	8.1	6	40	3	14	2	8.0	14	171
2	8	32	2	9.6	5	34	8	43	2	9.1	12	128
3	6	25	2	8.6	8	67	5	23	2	12	9	89
4	5	17	2	7.5	4	23	5	25	8	62	26	244
5	5	20	2	8.9	4	18	5	21	4	24	8	69
6	4	13	2	9.5	4	23	4	13	13	112	7	70
7	4	14	2	10	4	23	3	13	7	43	7	55
8	4	14	2	8.6	4	20	3	12	5	31	7	61
9	4	13	2	8.7	4	17	4	14	3	18	11	92
10	4	14	2	8.5	4	20	9	32	3	17	7	64
11	4	13	2	7.7	3	17	5	18	62	544	7	60
12	4	13	2	7.5	3	18	5	20	186	4050	6	48
13	4	13	2	6.7	3	15	27	162	87	1890	6	38
14	3	8.1	2	9.0	3	15	10	59	86	1880	6	46
15	3	8.9	2	7.2	3	14	3	14	53	956	5	33
16	4	12	2	7.8	4	20	2	9.7	24	302	7	36
17	4	13	2	7.7	7	34	2	7.5	29	317	6	31
18	13	40	2	7.3	8	38	2	7.3	18	175	6	39
19	8	29	6	35	4	16	2	7.7	10	92	6	35
20	5	20	7	43	4	18	2	9.8	107	1440	5	27
21	4	14	3	23	3	12	2	9.5	200	6370	5	28
22	1	3.6	4	26	4	17	2	9.5	75	1550	4	20
23	1	3.8	2	11	5	24	2	9.9	41	715	4	21
24	2	8.2	2	11	5	21	2	10	32	543	6	35
25	3	12	4	24	9	38	2	9.1	24	380	6	36
26	3	16	5	40	6	25	2	9.5	21	346	5	26
27	4	23	3	24	8	30	2	11	20	350	4	21
28	4	19	9	83	5	21	2	10	14	197	5	27
29	4	18	14	141	3	14	2	10	---	---	5	25
30	4	22	7	62	5	23	2	9.0	---	---	7	41
31	3	15	---	---	6	27	2	7.7	---	---	12	84
TOTAL	---	510.6	---	671.9	---	742	---	630.2	---	20543.1	---	1800

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY	
1	24	277	15	127
2	13	119	17	157
3	15	138	9	65
4	13	122	7	38
5	9	80	8	51
6	13	130	14	101
7	14	137	14	97
8	9	85	6	28
9	9	78	7	36
10	9	77	7	34
11	9	75	6	41
12	9	72	11	66
13	9	72	20	154
14	12	111	6	43
15	13	126	7	29
16	13	115	10	49
17	13	100	13	78
18	14	122	8	37
19	14	115	13	79
20	19	172	31	275
21	30	356	23	201
22	34	409	184	3350
23	36	456	160	3920
24	30	384	107	2100
25	39	505	59	846
26	27	307	31	320
27	18	185	22	185
28	15	161	20	159
29	18	191	48	529
30	9	80	350	24700
31	---	---	221	10700
TOTAL	---	5357	---	48595

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	NOV 13,80	JAN 15,81	MAR 10,81	MAY 19,81	JUN 3,81
TIME	1200	1300	1145	1200	1200
TOTAL CELLS/ML	13	130	450	26	2300
DIVERSITY: DIVISION	0.0	1.0	0.6	0.0	1.5
.CLASS	0.0	1.0	0.6	0.0	1.5
..ORDER	0.0	1.5	1.4	0.0	1.6
...FAMILY	0.0	2.0	2.0	1.0	2.4
....GENUS	0.0	2.0	2.2	1.0	2.5

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...COELASTRACEAE										
....COELASTRUM	--	-	--	-	--	-	--	-	220	10
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	26#	20	--	-	--	-	--	-
....CLOSTERIOPSIS	--	-	--	-	--	-	--	-	14	1
....TETRAEDRON	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	--	-	220	10
....SCENEDESMUS	--	-	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	39#	30	65	14	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	--	-	210#	46	--	-	28	1
....MELOSIRA	--	-	--	-	--	-	--	-	14	1
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	--	-	--	-	14	1
....COCCONEIS	--	-	--	-	13	3	--	-	55	2
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	--	-	--	-	41	2
...DIATOMACEAE										
....DIATOMA	--	-	--	-	--	-	--	-	14	1
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	--	-	100#	23	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-	13#	50	97	4
....SYNEDRA	--	-	--	-	13	3	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	--	-	41	2
...NAVICULACEAE										
....GYROSIGMA	--	-	--	-	--	-	--	-	14	1
....NAVICULA	13#	100	26#	20	26	6	--	-	140	6
...NITZSCHIACEAE										
....NITZSCHIA	--	-	39#	30	26	6	13#	50	110	5
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	--	-	--	-	1200#	54
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	--	-	--	-	--	-	--	-	14	1

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02035000 JAMES RIVER AT CARTERSVILLE, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	JUL 9,81	AUG 14,81	SEP 3,81	SEP 30,81
TIME	1200	1200	1230	1245
TOTAL CELLS/ML	52	870	1600	160000
DIVERSITY: DIVISION	0.0	0.5	0.5	0.5
.CLASS	0.0	0.5	0.5	0.5
..ORDER	0.8	0.5	0.5	0.6
...FAMILY	0.8	0.6	0.6	0.6
....GENUS	0.8	0.6	0.6	0.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...COELASTRACEAE								
....COELASTRUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	--	-	--	-	--	-
....CLOSTERIOPSIS	--	-	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	--	-	*	0
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	--	-
....SCENEDESMUS	--	-	--	-	--	-	*	0
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	--	-	28	2	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	13#	25	--	-	--	-	11000	7
....MELOSIRA	--	-	--	-	--	-	5800	4
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	14	2	--	-	--	-
....COCCONEIS	--	-	28	3	41	3	*	0
...CYMBELLACEAE								
....CYMBELLA	--	-	--	-	--	-	--	-
...DIATOMACEAE								
....DIATOMA	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....ASTERIONELLA	--	-	--	-	--	-	--	-
....FRAGILARIA	--	-	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	*	0
...GOMPHONEMATACEAE								
....GOMPHONEMA	--	-	14	2	--	-	--	-
...NAVICULACEAE								
....GYROSIGMA	--	-	--	-	--	-	--	-
....NAVICULA	--	-	--	-	28	2	--	-
...NITZSCHIACEAE								
....NITZSCHIA	39#	75	28	3	55	4	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	--	-	--	-	140000#	89
...OSCILLATORIACEAE								
....OSCILLATORIA	--	-	790#	90	1400#	90	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....TRACHELOMONAS	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

02036500 FINE CREEK AT FINE CREEK MILLS, VA

LOCATION.--Lat 37°35'52", long 77°49'12", Powhatan County, Hydrologic Unit 02080205, on right bank 75 ft (23 m) downstream from bridge on State Highway 711 at Fine Creek Mills, 0.8 mi (1.3 km) upstream from mouth, and 6.7 mi (10.8 km) northeast of Powhatan.

DRAINAGE AREA.--22.1 mi^2 (57.2 km^2).

PERIOD OF RECORD.--July 1944 to current year.

REVISED RECORDS.--WSP 1203: 1948. WSP 1303: 1945(M). WSP 1383: 1954. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 156.59 ft (47.729 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 28, 1953, nonrecording gage and crest-stage gage at site 75 ft (23 m) upstream at same datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--37 years, 20.1 ft^3/s (0.569 m^3/s), 12.35 in/yr (314 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,180 ft^3/s (118 m^3/s) Oct. 6, 1972, gage height, 9.02 ft (2.749 m), from rating curve extended above 2,600 ft^3/s (74 m^3/s); minimum daily, 0.08 ft^3/s (0.002 m^3/s) Oct. 1, 1968; minimum gage height, 1.53 ft (0.466 m) Sept. 30, Oct. 1, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 86 ft^3/s (2.44 m^3/s) Aug. 13, gage height, 2.41 ft (0.735 m), no peak above base of 200 ft^3/s (5.7 m^3/s); minimum, 0.48 ft^3/s (0.014 m^3/s) July 23, gage height, 1.59 ft (0.485 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	5.9	10	9.1	6.7	13	20	8.1	17	.70	.87	.80
2	3.0	7.1	9.1	9.1	24	12	16	8.1	20	.90	.81	.95
3	30	7.1	9.1	7.1	25	12	11	6.7	18	3.4	1.3	.90
4	32	13	7.1	6.7	15	12	7.1	5.9	13	12	3.1	.85
5	13	20	7.1	4.6	10	17	11	5.9	11	13	1.6	.85
6	9.1	13	7.1	3.5	9.1	18	29	5.9	9.1	7.1	1.4	1.1
7	5.0	9.1	8.1	3.9	10	14	18	6.7	12	6.7	1.8	1.7
8	4.6	7.1	9.1	4.3	21	12	12	5.9	10	5.0	18	3.4
9	3.8	6.7	9.1	4.3	20	11	11	4.6	6.7	3.0	18	2.9
10	3.4	7.1	10	3.5	15	11	14	5.5	5.9	2.0	6.1	1.8
11	3.0	6.7	10	3.0	38	11	15	17	5.0	1.6	2.5	1.2
12	2.6	5.9	9.1	2.8	43	10	10	27	3.8	.90	33	1.0
13	2.4	5.9	8.1	2.2	20	9.1	11	16	3.0	.80	59	.90
14	2.2	6.3	7.1	2.8	14	9.1	11	9.1	2.8	.75	15	.80
15	2.2	6.3	7.1	4.2	12	8.1	12	7.1	3.0	.70	5.9	.74
16	2.4	6.7	7.1	6.3	11	16	10	11	3.0	.60	3.0	1.5
17	2.4	9.1	7.1	6.3	10	12	10	9.1	1.6	.60	1.8	1.4
18	2.6	29	7.1	5.5	10	11	10	7.1	1.6	.55	1.2	1.0
19	8.1	21	7.1	5.9	11	10	9.1	59	1.4	.50	1.0	.95
20	5.9	13	6.7	6.7	22	10	14	59	1.0	2.2	.90	.90
21	5.9	10	5.5	10	27	10	16	30	1.4	1.4	.85	.85
22	5.0	7.1	5.0	15	24	9.1	12	18	3.0	.70	.85	.82
23	4.2	7.1	5.0	16	21	15	10	12	4.2	.50	.80	.79
24	4.2	13	5.1	13	20	17	13	9.1	2.6	.65	.85	.76
25	27	27	5.3	11	16	14	11	7.1	1.8	.95	.80	.74
26	30	18	5.6	12	14	12	9.1	6.3	1.2	1.0	.75	.72
27	14	15	5.9	15	13	11	9.1	5.9	.90	4.5	.65	.70
28	8.1	17	7.1	13	13	10	8.1	6.3	.85	3.3	.65	.68
29	5.9	15	12	10	---	10	6.7	8.1	.75	3.7	.60	.67
30	5.9	12	12	9.1	---	15	6.3	12	.75	1.6	.70	.60
31	5.5	---	10	7.1	---	32	---	15	---	1.2	.75	---
TOTAL	256.2	347.2	240.8	233.0	494.8	393.4	362.5	414.5	166.35	82.50	184.53	32.97
MEAN	8.26	11.6	7.77	7.52	17.7	12.7	12.1	13.4	5.55	2.66	5.95	1.10
MAX	32	29	12	16	43	32	29	59	20	13	59	3.4
MIN	2.2	5.9	5.0	2.2	6.7	8.1	6.3	4.6	.75	.50	.60	.60
CFSM	.37	.53	.35	.34	.80	.58	.55	.61	.25	.12	.27	.05
IN.	.43	.58	.41	.39	.83	.66	.61	.70	.28	.14	.31	.06

CAL YR 1980 TOTAL 7603.05 MEAN 20.8 MAX 344 MIN .75 CFSM .94 IN 12.80
WTR YR 1981 TOTAL 3208.75 MEAN 8.79 MAX 59 MIN .50 CFSM .40 IN 5.40

02037000 JAMES RIVER AND KANAWHA CANAL NEAR RICHMOND, VA

LOCATION.--Lat 37°33'52", long 77°34'28", Henrico County, Hydrologic Unit 02080205, on left bank 75 ft (23 m) downstream from Canal bridge, 400 ft (122 m) downstream from head gates, 1,200 ft (366 m) north of north end of Bosher Dam on James River, 1.6 mi (2.6 km) upstream from Huguenot Memorial Bridge, and 2.0 mi (3.2 km) west of city limits of Richmond.

PERIOD OF RECORD.--September 1936 to current year.

GAGE.--Water-stage recorder. Datum of gage is 106.07 ft (32.330 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1938, at datum 3.06 ft (0.933 m) higher.

REMARKS.--Records good except those for period of no gage-height record, Oct. 1 to Nov. 9, which are poor. Canal diverts from James River 1,200 ft (366 m) above Bosher Dam and discharges into river at several points below gaging station near Richmond. Above 2,540 ft^3/s (71.9 m^3/s), gage height, 14.5 ft (4.42 m), there is interchange of flow with James River; discharge above 2,540 ft^3/s (71.9 m^3/s) included in discharge for James River near Richmond (station 02037500). Figures given show flow in canal only. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--45 years, 789 ft^3/s (22.34 m^3/s).

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 29.1 ft (8.87 m) June 23, 1972, from floodmarks, interchange of flow with James River makes maximum discharge indeterminate; no flow at times when head gates were closed.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,080 ft^3/s (30.6 m^3/s) June 6, gage height, 8.83 ft (2.691 m); minimum daily, 0.60 ft^3/s (0.017 m^3/s) Oct. 1 to Nov. 9, result of seepage around closed head gates.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.60	.60	758	484	446	431	458	762	952	666	720	428
2	.60	.60	53	486	442	436	444	766	956	684	697	457
3	.60	.60	27	481	434	433	458	584	970	698	691	455
4	.60	.60	26	482	442	442	462	25	1020	788	706	463
5	.60	.60	597	489	436	436	460	23	1050	872	691	468
6	.60	.60	711	476	446	444	455	22	1070	902	691	460
7	.60	.60	722	484	436	438	454	20	1040	918	689	811
8	.60	.60	54	494	442	444	452	208	986	918	777	872
9	.60	.60	27	482	444	439	444	706	958	849	932	864
10	.60	21	392	494	444	441	442	720	950	807	849	815
11	.60	24	641	490	444	444	452	737	906	792	775	786
12	.60	107	529	486	442	444	450	760	872	823	769	745
13	.60	657	524	476	442	428	452	760	838	785	804	735
14	.60	552	471	458	449	442	457	756	834	762	800	730
15	.60	72	454	482	444	442	455	728	815	754	764	711
16	.60	650	455	495	441	441	342	713	819	747	726	722
17	.60	695	455	508	166	442	146	731	672	724	706	716
18	.60	704	458	508	144	452	229	735	314	720	698	748
19	.60	733	452	513	441	457	441	766	747	720	695	754
20	.60	754	460	514	428	460	438	811	735	722	689	735
21	.60	728	465	510	460	460	446	824	728	695	680	724
22	.60	623	359	511	442	460	450	796	711	680	679	713
23	.60	544	188	514	330	457	444	862	718	709	679	711
24	.60	52	470	514	24	457	577	859	720	689	671	702
25	.60	33	474	508	256	457	824	847	728	689	670	693
26	.60	31	478	59	442	458	815	811	702	724	599	688
27	.60	157	474	34	441	458	785	788	684	758	460	686
28	.60	748	474	33	438	463	794	779	688	735	447	684
29	.60	779	476	29	---	457	786	773	688	718	114	679
30	.60	781	479	175	---	468	786	872	670	720	20	679
31	.60	---	471	450	---	460	---	918	---	720	222	---
TOTAL	18.60	9450.40	13074	13119	11086	13891	15098	20462	24541	23488	20110	20434
MEAN	.60	315	422	423	396	448	503	660	818	758	649	681
MAX	.60	781	758	514	460	468	824	918	1070	918	932	872
MIN	.60	.60	26	29	24	428	146	20	314	666	20	428

CAL YR 1980 TOTAL 22707.40 MEAN 62.0 MAX 781 MIN .60
WTR YR 1981 TOTAL 184772.00 MEAN 506 MAX 1070 MIN .60

02037500 JAMES RIVER NEAR RICHMOND, VA

LOCATION.--Lat 37°33'47", long 77°32'50", Henrico County, Hydrologic Unit 02080205, on left bank 0.1 mi (0.2 km) upstream from Huguenot Memorial Bridge, 0.5 mi (0.8 km) west of city limits of Richmond, 1.7 mi (2.7 km) downstream from Bosher Dam, 3.3 mi (5.3 km) upstream from Powhite Creek, and at mile 116.60 (187.61 km).

DRAINAGE AREA.--6,758 mi^2 (17,503 km^2).

PERIOD OF RECORD.--October 1934 to current year. Gage-height records collected in vicinity of Mayo's Bridge, at mile 109.5 (176.2 km), 1876-1956, and at mile 108.7 (174.9 km) since 1957, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 972: 1936(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Control is Williams Island dams which divert flow for city of Richmond water supply. Datum of gage is 98.82 ft (30.120 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. City of Richmond takes from 40 ft^3/s (1.13 m^3/s) to 90 ft^3/s (2.55 m^3/s) for water supply from river below gage except during periods of low flow when supply is obtained from James River and Kanawha Canal. Flow regulated by powerplants above station. Above 18.2 ft (5.55 m) stage there is interchange of flow with James River and Kanawha Canal. Records of daily discharge include diversion by city of Richmond but do not include flow in James River and Kanawha Canal (station 02037000) which diverts around station. National Weather Service telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--47 years, 7,511 ft^3/s (212.7 m^3/s), 15.09 in/yr (383 mm/yr), includes flow in James River and Kanawha Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 313,000 ft^3/s (8,860 m^3/s), includes canal flow, June 23, 1972, gage height, 28.62 ft (8.723 m); minimum daily, about 10 ft^3/s (0.28 m^3/s) Sept. 8-15, 1966, Sept. 30, Oct. 5, 6, 1968, Oct. 8-10, 1970; minimum daily discharge of James River and James River and Kanawha Canal combined, 370 ft^3/s (10.5 m^3/s) Sept. 13, 1966.

EXTREMES OUTSIDE PERIOD OF RECORD.--Probable minimum daily discharge, since 1899, of James River and James River and Kanawha Canal combined, about 350 ft^3/s (9.9 m^3/s) in October 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,700 ft^3/s (728 m^3/s) May 30, gage height, 9.85 ft (3.002 m), no peak above base of 50,000 ft^3/s (1,400 m^3/s); minimum, 182 ft^3/s (5.15 m^3/s) Sept. 30, gage height, 3.13 ft (0.954 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1290	1820	2480	1270	1070	4750	2500	3040	12500	490	1190	490
2	1290	1540	2260	1340	1140	4370	3500	2770	9430	615	940	490
3	1700	1680	2450	1450	1400	4000	3500	2740	8780	865	565	915
4	1860	1630	2820	1320	1590	3740	3370	2740	12500	2330	740	865
5	1560	1590	2140	1160	2120	3870	3370	2600	15800	4540	540	690
6	1660	1660	1320	1270	1860	4240	5150	2570	15000	6290	465	1520
7	1400	1680	1400	955	2330	4240	5020	2700	11600	6880	490	2850
8	1380	1800	1770	955	2000	3740	4620	2700	9000	6940	1260	6450
9	1380	1680	1980	1180	1910	3500	4240	2190	7880	5060	8090	5300
10	1320	1680	1660	865	1910	3500	4000	1800	7720	3990	4950	3990
11	1400	1610	1340	735	2020	3500	3740	1770	6590	3600	3130	3050
12	1380	1500	1520	715	3760	3370	3620	3370	5650	3600	2250	2090
13	1270	1180	1660	715	7070	3300	3500	3500	4720	3730	2510	1560
14	1220	865	1540	820	6760	2970	3370	3000	4430	2770	3080	1360
15	1110	1450	1400	1180	6600	2940	4000	2500	3960	2400	2480	1160
16	1110	1110	1450	1340	5290	2870	4120	2140	3730	2250	1690	1120
17	1160	955	1360	1430	4120	2550	3870	1980	3960	1790	1140	940
18	1270	1000	1380	1320	3870	2400	3500	2070	3960	1620	865	1340
19	1360	1220	1360	1000	3500	2430	3340	3220	2790	1440	715	1620
20	1380	1960	1160	1020	4370	2400	3240	5290	2250	1360	640	1440
21	1500	1800	1250	1290	8690	2310	3370	5290	1990	1220	490	1190
22	1320	1860	1110	1450	9170	2240	3740	4370	1660	790	390	990
23	1320	1930	1500	1380	7400	2190	4000	7730	1620	865	390	765
24	1380	1980	1360	1380	7400	2140	4120	7070	1660	965	290	790
25	1750	2310	1220	1400	6300	2160	4000	5860	1840	790	244	540
26	1890	2380	1140	1520	5290	2240	4000	4500	1440	940	212	440
27	1980	2820	955	1630	5430	2210	3740	3870	1090	1920	259	340
28	2140	2480	888	1820	5290	2120	3370	3500	890	1840	290	290
29	1860	2550	1220	1820	---	2090	3340	3300	890	1460	365	244
30	1700	2770	1450	1770	---	2070	3270	13400	765	1160	690	197
31	1910	---	1380	1380	---	2190	---	20300	---	1220	690	---
TOTAL	46250	52490	47923	38880	119660	92640	112520	133880	166095	75730	42040	45026
MEAN	1492	1750	1546	1254	4274	2988	3751	4319	5537	2443	1356	1501
MAX	2140	2820	2820	1820	9170	4750	5150	20300	15800	6940	8090	6450
MIN	1110	865	888	715	1070	2070	2500	1770	765	490	212	197
(*)	.60	315	422	423	396	448	503	660	818	758	649	681
MEAN‡	1493	2065	1968	1677	4670	3436	4254	4979	6355	3201	2005	2182
CFSM‡	.22	.31	.29	.25	.69	.51	.63	.74	.94	.47	.30	.32
IN‡	.25	.35	.33	.29	.72	.59	.70	.85	1.05	.54	.35	.36

CAL YR 1980 TOTAL 2572853 MEAN 7030 MAX 59800 MIN 865 MEAN‡ 7092 CFSM‡ 1.05 IN‡ 14.25
WTR YR 1981 TOTAL 973134 MEAN 2666 MAX 20300 MIN 197 MEAN‡ 3172 CFSM‡ .47 IN‡ 6.38

* Diversion, in cubic feet per second, by James River and Kanawha Canal.
‡ Adjusted for diversion.

02037700 JAMES RIVER AT RICHMOND, VA

LOCATION.--Lat 37°31'55", long 77°26'05", Richmond City, Hydrologic Unit 02080206, left channel on Mayos Bridge, 2.1 mi (3.4 km) downstream from Reedy Creek, and 2.3 mi (3.7 km) upstream from Almond Creek.

DRAINAGE AREA.--6,790 mi² (17,590 km²), approximately.

PERIOD OF RECORD.--October 1979 to September 1981 (discontinued).

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)
OCT								
09...	0745	1380	262	7.3	17.5	9.0	13	21
NOV								
13...	0800	1270	245	7.8	10.0	10.4	16	MO
DEC								
16...	0830	1470	220	7.9	5.5	12.4	11	20
JAN								
15...	0930	1160	260	8.0	.0	15.0	11	13
FEB								
11...	0815	1980	323	7.9	6.5	13.0	--	MO
MAR								
10...	0815	3420	130	7.7	6.5	12.2	13	K7
APR								
15...	0815	3970	165	8.0	16.0	10.4	<10	380
MAY								
19...	0730	2280	155	7.7	19.0	10.0	16	K2400
JUN								
03...	0730	8480	105	7.8	20.0	8.8	<10	220
JUL								
09...	0730	5300	115	7.6	26.0	7.8	26	77
AUG								
14...	0730	3160	122	7.5	25.0	8.2	42	--
SEP								
03...	0800	865	255	7.9	25.0	8.0	44	92

MO All plates with colonies too numerous to count.
K Result based on colony count outside optimal range.
< Actual value is known to be less than the value shown.

DATE	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	CYANIDE TOTAL (MG/L AS CN)	SEDI-MENT, SUS-PENDED (MG/L)
OCT								
09...	<1	22	--	4	<1	30	<.01	4
NOV								
13...	<1	5	--	9	<1	50	<.01	--
DEC								
16...	16	1	--	10	<1	10	<.01	--
JAN								
15...	<1	4	--	2	<1	10	<.01	4
FEB								
11...	10	15	--	13	1	20	<.01	27
MAR								
10...	5	3	--	2	1	160	<.01	7
APR								
15...	2	9	--	1	<1	10	<.01	16
MAY								
19...	5	4	--	2	<1	20	<.01	16
JUN								
03...	<1	5	--	7	<1	30	<.01	91
JUL								
09...	5	8	.1	6	<1	30	<.01	37
AUG								
14...	6	6	.1	2	1	20	<.01	38
SEP								
03...	3	12	.3	2	<1	20	<.01	11

< Actual value is known to be less than the value shown.

02037700 JAMES RIVER AT RICHMOND, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	SOLIDS, RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)
OCT 09...	65	4	.19	.23	.42	.090	1	<1	6
NOV 13...	100	32	.05	.08	.13	.110	1	<1	3
DEC 16...	87	4	.20	.29	.49	.090	1	<1	3
JAN 15...	13	10	.31	.26	.57	.140	1	<1	10
FEB 11...	MO	18	.22	.40	.62	.270	1	<1	17
MAR 10...	16	4	.43	.14	.57	.060	<1	<1	10
APR 15...	E56	10	.33	<.10	--	.120	1	3	8
MAY 19...	K1400	9	.35	.56	.91	.120	<1	2	7
JUN 03...	390	52	.31	.61	.92	.150	1	<1	10
JUL 09...	140	33	1.7	.27	2.0	.130	1	2	<1
AUG 14...	430	81	.39	.39	.78	.090	2	1	<1
SEP 03...	210	18	.08	.33	.41	.070	2	2	8

< Actual value is known to be less than the value shown.
E Estimated.
K Result based on colony count outside optimal range.
MO All plates with colonies too numerous to count.

02038000 FALLING CREEK NEAR CHESTERFIELD, VA

LOCATION.--Lat 37°26'37", long 77°31'21", Chesterfield County, Hydrologic Unit 02080206, on left bank at upstream side of bridge on State Highway 651, 0.8 mi (1.3 km) downstream from Licking Creek, 2.8 mi (4.5 km) upstream from Pocoshock Creek, and 4.7 mi (7.6 km) northwest of Chesterfield.

DRAINAGE AREA.--32.8 mi^2 (85.0 km^2).

PERIOD OF RECORD.--October 1955 to current year.

REVISED RECORDS.--WSP 1904: 1957(M), 1958-60.

GAGE.--Water-stage recorder. Datum of gage is 126.39 ft (38.524 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, Dec. 4 to Jan. 20, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--26 years, 34.5 ft^3/s (0.977 m^3/s), 14.28 in/yr (363 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft^3/s (168 m^3/s) Oct. 1, 1979, gage height, 15.32 ft (4.670 m), from floodmarks, from rating curve extended above 3,200 ft^3/s (91 m^3/s) on basis of slope-conveyance study; minimum, 0.01 ft^3/s (<0.001 m^3/s) Sept. 20, Oct. 3, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 204 ft^3/s (5.78 m^3/s) July 5, gage height, 6.07 ft (1.850 m), no peak above base of 220 ft^3/s (6.2 m^3/s); minimum, 0.90 ft^3/s (0.025 m^3/s) Aug. 26, 27, 28, gage height, 3.03 ft (0.924 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	8.6	13	8.4	5.8	17	21	15	12	7.6	3.1	2.2
2	2.6	7.2	12	6.2	28	16	19	13	25	20	2.1	2.1
3	6.7	6.5	11	4.6	38	17	17	12	18	50	5.5	2.1
4	21	9.1	12	4.4	19	15	14	12	13	112	28	2.5
5	13	14	8.6	5.3	13	25	16	11	11	140	18	2.7
6	8.0	12	7.9	7.5	11	30	37	11	9.0	95	11	3.0
7	5.0	9.2	7.9	8.2	11	21	26	13	21	50	12	3.3
8	3.5	7.6	7.5	6.1	18	17	21	11	16	26	12	3.2
9	2.8	6.8	7.9	4.2	20	16	21	11	10	15	10	3.2
10	2.4	6.9	10	3.1	16	16	25	12	7.5	8.2	6.8	2.1
11	2.0	6.6	9.3	2.6	51	15	21	58	5.7	6.8	4.4	2.2
12	2.0	5.3	8.3	2.3	77	14	19	130	4.2	5.2	3.7	2.3
13	2.0	4.8	7.5	2.5	34	13	21	44	3.6	4.4	4.8	2.5
14	2.3	4.8	7.0	3.0	24	13	20	28	3.4	3.5	7.5	2.8
15	2.0	5.5	6.7	4.3	21	13	23	22	3.4	2.6	5.3	3.7
16	1.7	6.2	6.5	7.3	19	14	21	18	3.0	2.1	5.8	17
17	1.5	6.1	6.7	6.0	17	15	19	12	2.6	2.0	24	20
18	1.3	21	6.5	4.5	16	13	19	9.4	2.3	1.8	21	21
19	142	21	6.0	3.7	16	14	17	29	2.2	1.6	16	10
20	50	13	5.6	4.5	45	13	23	50	2.4	1.4	10	5.9
21	19	9.9	5.3	9.3	70	12	26	32	9.9	1.3	9.9	4.4
22	11	8.4	6.2	18	41	11	20	22	15	1.2	17	4.4
23	7.9	7.9	9.4	16	32	17	18	16	9.7	1.1	16	2.3
24	6.2	22	14	12	32	20	26	13	5.9	1.1	7.0	1.7
25	52	46	11	9.2	26	17	24	11	4.2	1.4	1.1	1.5
26	75	23	8.0	8.7	21	14	19	8.0	3.4	1.5	.98	1.6
27	27	17	6.9	8.7	20	13	18	6.1	2.7	4.7	.94	1.8
28	17	26	7.6	8.6	18	13	16	13	2.2	3.9	1.0	2.3
29	13	24	15	8.3	---	12	15	17	1.8	6.1	1.5	2.4
30	11	17	12	6.7	---	17	14	13	2.2	5.3	2.0	2.6
31	9.9	---	9.9	5.7	---	28	---	12	---	4.3	2.4	---
TOTAL	523.7	383.4	273.2	209.9	759.8	501	616	684.5	232.3	587.1	270.82	138.8
MEAN	16.9	12.8	8.81	6.77	27.1	16.2	20.5	22.1	7.74	18.9	8.74	4.63
MAX	142	46	15	18	77	30	37	130	25	140	28	21
MIN	1.3	4.8	5.3	2.3	5.8	11	14	6.1	1.8	1.1	.94	1.5
CFSM	.52	.39	.27	.21	.83	.49	.63	.67	.24	.58	.27	.14
IN.	.59	.43	.31	.24	.86	.57	.70	.78	.26	.67	.31	.16

CAL YR 1980 TOTAL 12635.80 MEAN 34.5 MAX 606 MIN 1.0 CFSM 1.05 IN 14.33
WTR YR 1981 TOTAL 5180.52 MEAN 14.2 MAX 142 MIN .94 CFSM .43 IN 5.88

02038830 FISHPOND CREEK NEAR HIXBURG, VA

LOCATION.--37°22'09", long 78°38'45", Appomattox County, Hydrologic Unit 02080207, on left bank attached to upstream side of bridge on State Highway 617, 0.5 ft (0.8 km) upstream from mouth, and 2.8 mi (4.5 km) north of Hixburg.

DRAINAGE AREA.--14.0 mi^2 (36.3 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1979 to July 1981 (discontinued).

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 201 ft^3/s (5.69 m^3/s) Jan. 18, 1980, gage height, 4.71 ft (1.436 m); minimum, 1.0 ft^3/s (0.028 m^3/s) June 29, 30, July 1, 1981, gage height, 1.45 ft (0.442 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge during period October 1980 to July 1981, 97 ft^3/s (2.75 m^3/s) July 24, gage height, 3.44 ft (1.049 m); minimum, 1.0 ft^3/s (0.028 m^3/s) June 29, 30, July 1, gage height, 1.45 ft (0.442 m).

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER 1980 TO JULY 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	4.8	4.8	4.2	4.7	5.7	5.6	4.9	3.1	1.0		
2	4.0	4.7	4.7	4.1	9.1	5.7	5.4	4.5	3.3	1.4		
3	4.2	4.7	4.6	4.2	6.1	5.6	5.2	4.2	3.2	3.1		
4	4.2	5.6	4.5	4.4	3.9	5.6	5.0	4.1	3.8	7.3		
5	4.0	6.0	4.5	4.7	3.1	7.3	6.1	4.0	4.7	2.6		
6	4.1	5.0	4.5	4.2	3.2	6.5	8.6	4.0	3.5	3.4		
7	4.0	4.7	4.6	4.6	3.5	5.9	6.5	4.8	6.7	2.6		
8	3.9	4.7	4.5	4.5	4.3	5.6	6.0	4.0	3.4	2.0		
9	3.9	4.7	4.6	4.2	5.1	5.4	5.9	3.8	2.8	1.7		
10	3.8	5.1	4.7	4.1	4.1	5.2	6.2	4.2	2.5	1.7		
11	3.9	4.8	4.6	4.2	28	5.1	5.4	4.9	2.4	3.2		
12	3.8	4.6	4.4	4.4	13	5.0	5.4	4.2	2.1	2.0		
13	3.7	4.6	4.4	4.7	8.6	5.0	7.5	3.7	2.0	1.7		
14	3.7	4.7	4.4	5.3	6.2	5.0	6.4	3.7	2.0	1.6		
15	3.8	4.7	4.4	6.5	5.6	4.9	6.2	3.6	1.9	1.4		
16	3.8	4.8	4.4	6.4	5.2	5.0	5.8	3.4	1.8	1.4		
17	3.8	5.0	4.4	6.2	5.0	5.0	5.8	3.3	1.6	1.5		
18	4.0	9.3	4.2	6.0	5.0	5.0	6.1	3.3	1.5	1.4		
19	4.6	5.6	4.2	6.0	6.9	4.9	5.5	5.2	1.6	1.3		
20	4.4	5.1	4.1	5.8	20	4.8	7.2	5.2	1.5	1.2		
21	4.6	4.8	4.0	5.7	18	4.7	6.7	4.2	1.6	1.4		
22	4.9	4.7	4.0	5.8	9.8	4.8	5.9	3.7	1.6	1.2		
23	5.0	4.7	4.0	4.9	8.0	6.0	5.8	3.4	1.3	1.1		
24	5.0	7.4	4.1	4.6	7.1	5.9	5.9	3.1	1.3	14		
25	6.9	6.9	6.6	4.5	6.5	5.3	5.3	3.0	1.2	4.8		
26	5.7	5.4	7.2	4.2	6.1	4.9	5.1	2.9	1.2	2.7		
27	4.9	5.3	7.2	4.3	6.0	4.9	4.9	2.8	1.1	2.3		
28	4.9	6.1	6.0	4.2	5.7	4.8	4.8	3.2	1.1	---		
29	5.0	5.4	4.4	4.1	---	4.6	4.6	3.2	1.1	---		
30	4.9	4.9	4.3	4.3	---	5.9	4.6	3.0	1.0	---		
31	4.9	---	4.2	5.5	---	6.7	---	2.8	---	---		
TOTAL	136.6	158.8	145.5	150.8	217.8	166.7	175.4	118.3	67.9	---	---	---
MEAN	4.41	5.29	4.69	4.86	7.78	5.38	5.85	3.82	2.26	---	---	---
MAX	6.9	9.3	7.2	6.5	28	7.3	8.6	5.2	6.7	---	---	---
MIN	3.7	4.6	4.0	4.1	3.1	4.6	4.6	2.8	1.0	---	---	---

CAL YR 1980 TOTAL 4486.8 MEAN 12.3 MAX 89 MIN 3.0

02038830 FISHPOND CREEK NEAR HIXBURG, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1980 to August 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1980 to July 1981 (discontinued).
WATER TEMPERATURES: October 1980 to July 1981 (discontinued).

INSTRUMENTATION.--Water-quality monitor from October 1980 to July 1981.

EXTREMES FOR PERIOD OCTOBER 1980 TO JULY 1981.--
SPECIFIC CONDUCTANCE: Maximum recorded, 92 micromhos July 10; minimum recorded, 43 micromhos Feb. 20.
WATER TEMPERATURES: Maximum recorded, 26.0°C June 16; minimum recorded, 0.0°C Jan. 11, 12.

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
OCT				
01...	1030	4.3	2	.02
03...	1115	4.3	3	.03
06...	0900	4.2	1	.01
08...	1055	4.0	1	.01
29...	1230	5.1	1	.01
NOV				
03...	1415	4.7	10	.13
04...	1350	4.6	1	.01
05...	1052	6.0	6	.10
12...	0950	4.6	2	.02
14...	1020	4.6	2	.02
17...	1030	4.7	3	.04
17...	1655	4.9	2	.03
18...	0935	10	24	.67
20...	1043	5.0	4	.05
24...	0934	5.0	5	.07
24...	1250	7.2	52	1.0
24...	1340	8.4	20	.45
24...	1440	9.0	37	.90
24...	1520	9.7	105	2.7
24...	1630	10	139	3.9
24...	1735	11	59	1.7
NOV				
24...	1830	11	139	4.2
24...	1935	11	59	1.8
24...	2005	11	37	1.1
25...	1007	6.8	13	.24
DEC				
01...	0915	4.7	2	.03
09...	1200	4.6	5	.06
15...	1300	4.4	10	.12
17...	1240	4.6	4	.05
AUG				
05...	1015	1.8	19	.09
06...	0945	1.6	8	.03
07...	0954	1.8	7	.03
10...	0915	1.7	6	.03
11...	0853	1.7	6	.03
12...	1000	1.8	6	.03
12...	1150	2.8	1	.01
13...	1552	1.8	1	.00
17...	0940	3.1	22	.18
19...	0945	1.6	1	.00
20...	1420	1.6	1	.00
21...	1112	1.6	1	.00

02038830 FISHPOND CREEK NEAR HIXBURG, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), OCTOBER 1980 TO JULY 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	53	54	52	49	54	53	54	60	67	76
2	54	54	52	49	50	53	54	60	62	78
3	55	54	52	50	50	53	55	60	64	65
4	53	53	52	50	55	53	57	60	65	49
5	54	50	51	54	55	51	58	62	60	61
6	53	52	51	54	55	49	55	63	68	60
7	53	54	52	50	52	51	---	60	65	69
8	53	53	52	50	48	52	---	60	69	80
9	53	54	52	52	48	52	55	60	75	89
10	54	54	52	52	49	52	54	61	82	92
11	54	53	52	54	52	52	56	57	82	71
12	55	54	52	57	52	52	57	58	82	79
13	55	53	51	64	52	52	58	61	82	84
14	55	53	51	67	52	52	58	63	84	---
15	54	53	51	65	52	52	56	65	84	---
16	54	52	51	55	52	53	57	64	84	---
17	54	52	51	49	52	52	57	64	82	---
18	57	47	51	50	53	53	56	65	83	---
19	59	49	51	48	54	53	58	58	82	---
20	58	51	51	47	43	52	---	53	83	---
21	61	51	53	46	47	52	54	55	79	---
22	59	51	55	45	50	52	55	59	79	---
23	58	51	52	46	51	50	57	62	78	---
24	57	52	49	48	51	49	58	63	80	---
25	56	48	48	49	52	50	58	64	78	---
26	53	51	53	48	52	51	57	66	80	---
27	56	52	53	48	52	52	59	68	78	---
28	56	50	51	48	52	52	61	67	77	---
29	56	50	47	49	---	53	62	64	76	---
30	55	51	51	50	---	54	62	66	76	---
31	55	---	48	52	---	51	---	68	---	---
MEAN	55	52	51	51	51	52	57	62	76	73

WTR YR 1981 MEAN 57 MAX 92 MIN 43

TEMPERATURE, WATER (DEG. C), OCTOBER 1980 TO JULY 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL
1	18.0	8.5	5.5	3.0	.5	10.0	13.0	17.0	19.5	20.5
2	18.5	8.0	6.5	2.5	2.5	9.0	13.0	15.0	19.0	20.5
3	17.5	7.5	5.0	1.0	.5	7.0	13.5	14.5	21.0	20.5
4	15.0	9.0	3.5	.5	.5	5.0	15.5	16.0	22.0	20.5
5	14.0	10.0	5.0	.5	.5	6.5	16.0	17.0	22.0	21.5
6	13.5	7.5	6.5	.5	.5	6.5	13.0	18.0	22.5	22.0
7	12.0	9.5	8.0	.5	.5	5.5	---	17.0	22.0	23.5
8	12.5	11.5	8.5	.5	1.5	5.5	---	15.0	21.5	24.0
9	14.5	12.0	10.0	.5	1.0	6.0	13.5	15.5	23.5	25.5
10	15.5	11.0	10.0	.5	1.0	5.5	14.0	15.5	24.0	25.5
11	16.0	7.5	6.0	.0	4.5	6.0	15.0	17.5	24.0	24.5
12	13.0	6.0	5.0	.0	2.0	6.0	14.5	18.5	23.0	24.5
13	11.0	6.0	5.0	.5	.5	7.0	14.5	17.0	24.0	23.5
14	10.0	8.0	4.0	.5	2.0	8.5	14.0	18.0	25.0	---
15	11.0	10.0	3.5	.5	2.5	6.5	15.0	19.0	25.5	---
16	12.0	9.0	4.5	.5	3.5	8.0	13.5	17.5	26.0	---
17	13.5	6.5	4.0	.5	5.5	6.0	14.0	17.5	25.0	---
18	16.0	6.5	2.5	.5	8.0	8.0	16.0	15.0	23.0	---
19	17.0	4.5	4.0	.5	9.0	6.0	16.0	12.5	24.5	---
20	14.0	3.5	2.0	.5	9.0	4.5	---	12.0	24.5	---
21	12.5	3.5	.5	.5	9.5	5.0	13.0	15.0	24.5	---
22	12.0	3.5	.5	.5	10.5	4.0	13.0	16.5	25.0	---
23	12.0	4.5	.5	.5	10.5	5.0	16.5	17.5	23.0	---
24	10.5	6.5	1.0	.5	8.0	7.0	16.0	19.0	24.0	---
25	11.5	7.0	.5	1.0	7.0	4.0	13.5	20.0	25.0	---
26	9.5	4.5	.5	2.0	6.5	8.0	14.0	20.5	23.5	---
27	8.5	5.0	.5	3.0	6.5	9.0	17.5	20.5	21.5	---
28	10.5	6.0	.5	3.0	7.5	9.0	19.0	20.0	20.5	---
29	11.5	5.0	2.0	2.0	---	10.5	19.0	20.0	21.0	---
30	10.5	5.0	3.0	1.5	---	12.5	17.0	21.0	21.5	---
31	8.5	---	2.5	.5	---	13.0	---	22.0	---	---
MEAN	13.0	7.0	4.0	1.0	4.5	7.0	15.0	17.5	23.0	23.0

WTR YR 1981 MEAN 11.0 MAX 26.0 MIN .0

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA
(Hydrologic bench-mark station)

LOCATION.--Lat 37°24'55", long 78°38'10", Appomattox County, Hydrologic Unit 02080207, on right bank 350 ft (110 m) downstream from culvert on State Highway 614, 1.0 mi (1.6 km) upstream from Holiday Lake, and 5.2 mi (8.4 km) southwest of Andersonville.

DRAINAGE AREA.--8.53 mi² (22.09 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1966 to current year.

REVISED RECORDS.--WDR VA-72-1: 1971(P).

GAGE.--Water-stage recorder. Datum of gage is 472.97 ft (144.161 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Recording rain gage at station.

AVERAGE DISCHARGE.--15 years, 9.42 ft³/s (0.267 m³/s), 15.00 in/yr (381 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft³/s (273 m³/s) June 21, 1972, gage height, 14.64 ft (4.462 m), from high-water mark in gage house, from rating curve extended above 4,200 ft³/s (120 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.10 ft³/s (0.003 m³/s) Sept. 11, 12, 1966; minimum gage height, 0.75 ft (0.229 m) July 28, 1966, June 29, 30, July 1, Aug. 26, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 138 ft³/s (3.91 m³/s) Feb. 19, gage height, 2.62 ft (0.799 m), no peak above base of 150 ft³/s (4.2 m³/s); minimum, 0.60 ft³/s (0.017 m³/s) June 29, 30, July 1; minimum gage height, 0.75 ft (0.229 m) June 29, 30, July 1, Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.0	2.8	3.2	2.8	3.5	4.1	4.7	3.4	2.8	.76	1.1	1.3
2	2.6	2.7	3.1	2.8	8.5	3.9	4.3	2.9	2.8	1.9	1.1	1.1
3	3.1	2.7	2.9	2.7	5.9	3.7	3.9	2.8	2.5	3.0	1.4	1.1
4	2.8	4.2	2.8	2.7	4.7	3.9	3.7	2.7	5.7	8.9	1.9	2.2
5	2.5	4.2	2.9	2.4	4.2	6.5	5.5	2.7	5.1	3.0	1.2	2.4
6	2.7	3.2	2.9	2.6	4.1	5.3	7.3	3.0	3.1	5.6	1.3	1.7
7	2.5	2.9	2.9	2.9	3.7	4.4	5.2	3.8	5.7	3.1	2.2	6.0
8	2.4	2.8	2.9	3.0	3.7	4.1	4.7	2.9	3.0	2.0	6.7	4.4
9	2.4	2.9	3.1	2.9	3.6	3.9	4.6	2.7	2.4	1.6	2.5	3.7
10	2.3	3.5	3.3	2.8	3.6	3.9	4.4	3.5	2.0	1.9	1.7	2.8
11	2.4	3.0	3.0	2.6	27	3.8	4.3	4.6	1.8	3.8	1.5	2.3
12	2.3	2.9	2.8	2.5	9.9	3.7	4.8	3.3	1.7	1.9	1.9	1.9
13	2.2	2.9	2.8	2.4	9.5	3.7	5.5	2.8	1.6	1.6	1.6	1.7
14	2.3	2.9	2.8	2.8	4.9	3.5	4.8	2.6	1.6	1.4	1.3	1.6
15	2.3	3.0	2.7	3.3	4.5	3.4	5.0	2.4	1.5	1.2	1.2	2.7
16	2.3	3.2	2.8	3.7	3.9	3.8	4.3	2.2	1.3	1.2	1.2	4.1
17	2.2	3.6	2.7	3.5	3.7	3.7	4.5	2.1	1.2	1.3	2.2	2.4
18	2.2	8.8	2.7	3.3	3.6	3.5	4.6	2.2	1.2	1.1	1.3	1.9
19	2.9	4.3	2.7	3.2	12	3.6	4.0	6.8	1.2	.99	1.2	1.6
20	2.5	3.5	2.5	3.5	48	3.4	5.8	5.5	1.2	1.0	1.3	1.4
21	2.4	3.2	2.7	4.1	13	3.4	5.0	3.7	1.1	1.2	1.0	1.2
22	2.4	3.1	3.1	3.8	7.6	3.4	4.4	2.8	1.1	.88	.99	1.2
23	2.3	3.0	3.5	3.6	6.6	5.7	4.1	2.4	.91	.81	.97	1.1
24	2.4	5.7	3.4	3.5	5.8	5.2	4.2	2.2	.90	8.7	.92	1.0
25	4.8	5.4	3.3	3.3	5.0	4.2	3.7	2.1	.83	6.2	.91	1.0
26	3.9	3.8	3.0	3.0	4.5	3.9	3.4	1.9	.79	2.7	.77	1.0
27	2.9	4.1	3.3	3.1	4.3	3.8	3.3	1.9	.70	1.9	.80	1.0
28	3.0	5.1	3.5	2.9	4.1	3.6	3.2	2.5	.65	1.6	.74	.97
29	2.9	3.9	3.4	2.8	---	3.6	3.1	2.4	.63	1.9	.71	.93
30	3.0	3.4	3.1	2.7	---	5.4	3.4	2.1	.63	1.3	2.1	.90
31	2.9	---	2.9	3.3	---	5.7	---	1.8	---	1.2	1.8	---
TOTAL	82.8	110.7	92.7	94.5	223.4	127.7	133.7	90.7	57.64	75.64	47.51	58.60
MEAN	2.67	3.69	2.99	3.05	7.98	4.12	4.46	2.93	1.92	2.44	1.53	1.95
MAX	4.8	8.8	3.5	4.1	48	6.5	7.3	6.8	5.7	8.9	6.7	6.0
MIN	2.2	2.7	2.5	2.4	3.5	3.4	3.1	1.8	.63	.76	.71	.90
CFSM	.31	.43	.35	.36	.94	.48	.52	.34	.23	.29	.18	.23
IN.	.36	.48	.40	.41	.97	.56	.58	.40	.25	.33	.21	.26

CAL YR 1980 TOTAL 2669.30 MEAN 7.29 MAX 81 MIN 1.3 CFSM .86 IN 11.64
WTR YR 1981 TOTAL 1195.59 MEAN 3.28 MAX 48 MIN .63 CFSM .39 IN 5.21

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)
OCT 29...	0915	2.9	36	7.3	10.5	11.5	36	120	12	0	2.6
DEC 16...	0900	2.8	36	7.3	4.0	13.4	K6	K6	10	0	2.2
FEB 03...	0915	8.6	39	7.4	.0	13.8	22	69	10	2	2.1
APR 15...	0945	5.2	36	7.3	13.0	10.9	K8	33	10	0	2.5
JUN 16...	0915	1.4	45	7.5	22.0	9.2	13	120	15	0	3.6
AUG 11...	1000	1.5	43	7.3	21.0	9.0	94	930	15	0	3.5

K Result based on colony count outside optimal range.

DATE	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)
OCT 29...	1.3	2.6	1.0	16	2.6	2.0	16	44	38	.01	.01
DEC 16...	1.1	2.9	.5	13	2.5	1.9	16	34	35	.03	.02
FEB 03...	1.1	2.3	.7	8.0	5.1	2.2	23	39	41	.03	.03
APR 15...	.9	2.3	.6	13	2.6	1.6	12	42	31	.01	.01
JUN 16...	1.4	3.1	.7	19	2.0	1.5	15	40	39	.09	.08
AUG 11...	1.4	4.3	.6	18	1.6	1.2	13	39	37	.07	.06

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN DIS-SOLVED (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)
OCT 29...	.020	<.010	.22	.19	.18	.21	.030	.020	--	--	--
DEC 16...	<.010	<.010	.14	.15	.12	.12	.010	<.010	1	1	100
FEB 03...	.040	.020	.20	.23	.20	.17	.020	.020	--	--	--
APR 15...	.210	.060	.11	.28	.27	.10	.020	.010	--	--	--
JUN 16...	.010	.010	.40	.46	.37	.32	.020	.020	1	<1	100
AUG 11...	.030	.040	.20	1.4	1.30	.14	.030	.010	--	--	--

< Actual value is known to be less than the value shown.

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	BARIUM, DIS-SOLVED (UG/L AS BA)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 29...	--	--	--	--	--	--	--	--	--	--	--
DEC 16...	30	<1	<1	<1	10	<10	<3	3	<10	330	190
FEB 03...	--	--	--	--	--	--	--	--	--	--	--
APR 15...	--	--	--	--	--	--	--	--	--	--	--
JUN 16...	30	<1	1	2	10	<10	<3	3	<10	1200	500
AUG 11...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	LITHIUM DIS-SOLVED (UG/L AS LI)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)
OCT 29...	--	--	--	--	--	--	--	--	--	--	--
DEC 16...	2	<10	<4	10	4	.1	.1	<10	<1	<1	<1
FEB 03...	--	--	--	--	--	--	--	--	--	--	--
APR 15...	--	--	--	--	--	--	--	--	--	--	--
JUN 16...	2	<10	<4	40	18	.7	.4	<10	<1	<1	<1
AUG 11...	--	--	--	--	--	.4	.4	--	--	--	--

< Actual value is known to be less than the value shown.

DATE	SILVER, DIS-SOLVED (UG/L AS AG)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	VANA-DIUM, DIS-SOLVED (UG/L AS V)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	GROSS ALPHA, DIS-SOLVED (UG/L AS U-NAT)	GROSS ALPHA, DIS-SOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS BETA, DIS-SOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)
OCT 29...	--	--	--	--	--	<.6	<.4	<.4	<.3	3.3	<.4
DEC 16...	<1	18	<6.0	10	<4	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--
APR 15...	--	--	--	--	--	--	--	--	--	--	--
JUN 16...	<1	31	<6.0	10	<4	--	--	--	--	--	--
AUG 11...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	BARIUM, DISSOLVED (UG/L AS BA)	BERYLLIUM, DISSOLVED (UG/L AS BE)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)
OCT 29...	--	--	--	--	--	--	--	--	--	--	--
DEC 16...	30	<1	<1	<1	10	<10	<3	3	<10	330	190
FEB 03...	--	--	--	--	--	--	--	--	--	--	--
APR 15...	--	--	--	--	--	--	--	--	--	--	--
JUN 16...	30	<1	1	2	10	<10	<3	3	<10	1200	500
AUG 11...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

DATE	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, DISSOLVED (UG/L AS PB)	LITHIUM DISSOLVED (UG/L AS LI)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY DISSOLVED (UG/L AS HG)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, DISSOLVED (UG/L AS SE)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)
OCT 29...	--	--	--	--	--	--	--	--	--	--	--
DEC 16...	2	<10	<4	10	4	.1	.1	<10	<1	<1	<1
FEB 03...	--	--	--	--	--	--	--	--	--	--	--
APR 15...	--	--	--	--	--	--	--	--	--	--	--
JUN 16...	2	<10	<4	40	18	.7	.4	<10	<1	<1	<1
AUG 11...	--	--	--	--	--	.4	.4	--	--	--	--

< Actual value is known to be less than the value shown.

DATE	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, DISSOLVED (UG/L AS ZN)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT)	GROSS ALPHA, DISSOLVED (PCI/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT)	GROSS ALPHA, SUSP. TOTAL (PCI/L AS U-NAT)	GROSS BETA, DISSOLVED (PCI/L AS CS-137)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137)
OCT 29...	--	--	--	--	--	<.6	<.4	<.4	<.3	3.3	<.4
DEC 16...	<1	18	<6.0	10	<4	--	--	--	--	--	--
FEB 03...	--	--	--	--	--	--	--	--	--	--	--
APR 15...	--	--	--	--	--	--	--	--	--	--	--
JUN 16...	<1	31	<6.0	10	<4	--	--	--	--	--	--
AUG 11...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

02038850 HOLIDAY CREEK NEAR ANDERSONVILLE, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	GROSS BETA, DIS-SOLVED (PCI/L AS SR/YT-90)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90)	RADIUM 226, DIS-SOLVED, RADON METHOD (PCI/L)	URANIUM DIS-SOLVED, EXTRAC-TION (UG/L)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	CYANIDE TOTAL (MG/L AS CN)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 29...	3.2	<.4	.12	.11	4.3	--	--	--	6	84
DEC 16...	--	--	--	--	--	4.7	.3	<.01	5	34
FEB 03...	--	--	--	--	4.8	--	--	--	9	74
APR 15...	--	--	--	--	3.7	--	--	--	3	55
JUN 16...	--	--	--	--	--	6.8	.4	--	10	82
AUG 11...	--	--	--	--	4.5	--	--	--	5	97

< Actual value is known to be less than the value shown.

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	PCB, TOTAL (UG/L)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	PCN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ALDRIN, TOTAL (UG/L)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	CHLOR-DANE, TOTAL (UG/L)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDD, TOTAL (UG/L)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DDE, TOTAL (UG/L)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
JUN 16...	0915	<.10	<1	<1.0	<.01	<.1	<.10	<1.0	<.01	<.1	<.01	<.1

DATE	DDT, TOTAL (UG/L)	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	DI-AZINON, TOTAL (UG/L)	DI-ELDRIN TOTAL (UG/L)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDO-SULFAN, TOTAL (UG/L)	ENDO-SULFAN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ENDRIN, TOTAL (UG/L)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	ETHION, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL (UG/L)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
JUN 16...	<.01	<.1	<.01	<.01	<.1	<.01	<.1	<.01	<.1	<.01	<.01	<.1

DATE	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG)	LINDANE TOTAL (UG/L)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	MALA-THION, TOTAL (UG/L)	METH-OXY-CHLOR, TOTAL (UG/L)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG)	METHYL PARA-THION, TOTAL (UG/L)	METHYL TRI-THION, TOTAL (UG/L)	MIREX, TOTAL (UG/L)	MIREX, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)
JUN 16...	<.01	<.1	<.01	<.1	<.01	<.01	<.1	<.01	<.01	<.01	<.1

DATE	NAPH-THA-LENES, POLY-CHLOR. TOTAL (UG/L)	PARA-THION, TOTAL (UG/L)	PER-THANE TOTAL (UG/L)	PER-THANE IN BOTTOM MATERIL (UG/KG)	SILVEX, TOTAL (UG/L)	TOX-APHENE, TOTAL (UG/L)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG)	TOTAL TRI-THION (UG/L)	2,4-D, TOTAL (UG/L)	2, 4-DP TOTAL (UG/L)	2,4,5-T TOTAL (UG/L)
JUN 16...	<.10	<.01	<.01	<.10	<.01	<.10	<1.0	<.01	<.01	<.01	<.01

< Actual value is known to be less than the value shown.

02038880 VAUGHANS CREEK NEAR HIXBURG, VA

LOCATION.--Lat 37°21'08", long 78°35'57", Appomattox County, Hydrologic Unit 02080207, on left bank attached to upstream side of bridge on State Highway 626, 3.3 mi (5.3 km) northeast of Hixburg, and 3.9 mi (6.3 km) upstream from mouth.

DRAINAGE AREA.--23.2 mi^2 (60.1 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1980 to September 1981 (discontinued).

REMARKS.--Records fair except those for periods of doubtful gage-height record, Oct. 27 to Dec. 10, Dec. 20 to Jan. 29, Feb. 2 to Apr. 1, Mar. 28 to Apr. 29, and July 13 to Sept. 30, which are poor.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 322 ft^3/s (9.12 m^3/s) July 10, 1980, gage height, 3.88 ft (1.183 m); minimum daily, 3.2 ft^3/s (0.091 m^3/s) June 30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 50 ft^3/s (1.42 m^3/s) Feb. 11; minimum daily, 3.2 ft^3/s (0.091 m^3/s) June 30.

REVISIONS.--The maximum discharge for the period March to September 1980 has been revised to 322 ft^3/s (9.12 m^3/s) July 10, 1980, gage height, 3.88 ft (1.183 m); revised daily discharge, in cubic feet per second, for July 10, 1980, is 52 ft^3/s (1.47 m^3/s). These figures supersede those published in the report for 1980.

	Total	Mean	Max	Min
July 1980	385.9	12.4	52	8.5

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.7	8.5	8.5	8.4	12	12	11	10	8.4	3.7	4.6	6.6
2	8.4	8.3	8.5	8.4	18	12	10	9.7	8.4	6.7	4.6	6.0
3	12	8.8	8.5	8.3	14	11	9.6	9.3	7.9	12	6.0	6.0
4	9.7	9.7	8.4	8.6	12	11	11	9.3	8.4	19	8.0	10
5	8.8	11	8.1	8.7	11	14	14	8.8	9.3	8.8	5.1	11
6	8.8	9.6	8.2	9.1	9.9	13	18	8.8	7.9	7.9	5.6	10
7	8.4	8.2	8.3	9.1	9.6	12	16	10	26	7.5	7.0	30
8	8.4	8.1	8.5	8.8	9.6	11	12	8.8	9.7	5.9	30	22
9	7.9	8.3	8.7	8.3	11	10	11	8.4	7.9	5.2	11	17
10	7.9	8.8	9.0	7.9	10	11	12	10	7.1	6.0	8.0	14
11	8.4	8.4	9.2	8.0	50	11	11	12	6.7	5.3	6.0	11
12	7.5	8.2	9.7	9.0	30	10	12	9.3	6.3	5.0	8.7	9.3
13	7.9	8.0	9.7	10	20	10	14	8.4	6.3	4.7	6.9	8.7
14	8.4	8.1	9.7	12	15	10	13	7.9	7.9	4.4	5.8	8.2
15	8.4	8.1	9.7	13	11	9.7	11	7.9	6.3	4.1	5.5	13
16	7.9	8.8	9.7	14	11	11	11	7.9	5.5	4.1	5.5	20
17	7.9	14	9.7	13	11	11	11	7.5	5.2	4.3	10	12
18	8.4	18	9.3	12	13	10	12	7.5	5.2	4.0	6.4	9.6
19	12	14	9.3	12	14	10	11	14	5.5	3.7	5.9	8.0
20	9.3	10	8.8	11	38	9.7	13	14	5.2	3.6	6.3	7.0
21	8.4	8.5	8.4	11	35	9.7	12	10	5.2	4.0	5.3	6.4
22	8.4	8.2	8.4	12	25	9.7	11	8.8	5.5	3.7	5.1	6.1
23	8.4	11	9.0	12	20	12	10	7.9	5.0	3.5	4.9	5.7
24	8.8	13	11	11	17	12	11	7.5	4.8	33	4.7	5.6
25	11	12	12	10	15	11	10	7.1	4.5	16	4.2	5.6
26	11	10	14	9.8	14	10	9.8	6.7	4.5	8.0	4.3	5.5
27	9.2	9.2	14	9.6	13	10	9.6	6.7	4.2	6.6	4.0	5.4
28	8.8	10	12	9.6	13	9.2	9.4	8.4	3.8	5.8	3.6	5.2
29	8.8	9.6	11	9.6	---	9.6	9.4	8.4	3.4	6.6	3.3	5.1
30	8.7	8.8	10	11	---	11	9.8	7.5	3.2	5.2	10	5.1
31	8.6	---	8.7	15	---	13	---	7.1	---	4.9	8.5	---
TOTAL	276.2	295.2	298.0	320.2	482.1	336.6	345.6	275.6	205.2	223.2	214.8	295.1
MEAN	8.91	9.84	9.61	10.3	17.2	10.9	11.5	8.89	6.84	7.20	6.93	9.84
MAX	12	18	14	15	50	14	18	14	26	33	30	30
MIN	7.5	8.0	8.1	7.9	9.6	9.2	9.4	6.7	3.2	3.5	3.3	5.1
CFSM	.38	.42	.41	.44	.74	.47	.50	.38	.30	.31	.30	.42
IN.	.44	.47	.48	.51	.77	.54	.55	.44	.33	.36	.34	.47

WTR YR 1981 TOTAL 3567.8 MEAN 9.77 MAX 50 MIN 3.2 CFSM .42 IN 5.72

02038880 VAUGHANS CREEK NEAR HIXBURG, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 1980 to August 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1980 to June 1981 (discontinued).
WATER TEMPERATURES: July 1980 to June 1981 (discontinued).

INSTRUMENTATION.--Water-quality monitor from July 1980 to June 1981.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

EXTREMES FOR PERIOD JULY 1980 TO JUNE 1981.--
SPECIFIC CONDUCTANCE: Maximum recorded, 92 micromhos June 5; minimum recorded, 56 micromhos Aug. 30, 31.
WATER TEMPERATURES: Maximum recorded, 24.5°C July 17, 20-22, Aug. 3, 12; minimum recorded, 0.5°C on many days during December to February.

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SEDI-MENT, DIS-CHARGE, SUS-PENDED (T/DAY)
OCT				
01...	1045	9.1	5	.12
03...	1125	11	16	.48
06...	0912	8.7	2	.05
08...	1105	4.4	3	.07
29...	1240	9.4	4	.10
NOV				
03...	1425	8.1	5	.11
04...	1400	12	3	.10
05...	1100	9.8	5	.13
12...	1005	8.1	4	.09
14...	1035	8.1	3	.07
17...	1040	8.7	4	.09
17...	1645	9.1	5	.12
18...	0925	62	95	16
20...	1055	9.1	4	.10
24...	0820	27	85	6.2
24...	0946	9.8	4	.11
24...	1300	19	37	1.9
24...	1330	19	50	2.6
24...	1400	19	101	5.2
24...	1500	19	29	1.5
24...	1850	31	169	14
NOV				
24...	1920	30	104	8.4
25...	1017	9.1	18	.44
DEC				
01...	0925	8.1	3	.07
09...	1230	8.6	4	.08
15...	1248	9.5	3	.06
17...	1300	9.5	3	.06
AUG				
05...	1025	5.9	7	.05
06...	0955	5.6	6	.04
07...	1004	6.7	7	.06
10...	0930	8.0	17	.18
11...	0905	7.1	15	.14
12...	0950	10	23	.34
12...	1200	8.8	16	.19
13...	1602	6.7	6	.05
17...	0950	6.7	4	.04
19...	0935	5.9	1	.01
20...	1410	5.9	1	.01
21...	1124	7.1	1	.01

02038880 VAUGHANS CREEK NEAR HIXBURG, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), AUGUST TO SEPTEMBER 1980
MEAN VALUES

DAY	AUG	SEP
1	---	57
2	---	58
3	---	62
4	---	71
5	---	72
6	---	80
7	---	80
8	---	78
9	---	76
10	---	76
11	---	75
12	---	75
13	---	76
14	---	78
15	---	80
16	---	80
17	---	82
18	---	---
19	---	---
20	---	---
21	---	---
22	---	---
23	---	---
24	---	---
25	---	---
26	68	---
27	65	---
28	57	---
29	57	---
30	56	---
31	56	---
MEAN	60	74

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), OCTOBER 1980 TO JUNE 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1	78	71	75	71	75	---	82	87	90
2	---	71	75	72	84	---	83	85	85
3	---	71	74	72	88	---	82	84	83
4	---	72	73	72	85	---	82	85	87
5	---	75	73	76	83	79	84	86	92
6	---	73	73	74	80	79	88	87	---
7	---	72	74	70	78	77	82	87	---
8	---	73	75	73	79	77	82	84	---
9	---	74	75	74	79	76	83	83	---
10	69	75	77	73	79	76	83	85	---
11	68	74	76	75	80	76	84	87	---
12	68	72	74	77	---	75	86	88	---
13	66	71	73	77	---	76	89	87	---
14	66	71	73	73	---	76	86	87	---
15	66	72	73	71	---	76	86	87	---
16	67	73	72	70	---	75	85	87	---
17	67	73	73	71	---	75	85	85	---
18	70	80	72	73	---	75	85	85	---
19	75	75	72	70	---	75	86	84	---
20	74	73	72	69	---	74	87	87	---
21	72	72	74	69	---	74	86	87	---
22	72	72	75	72	---	74	85	89	---
23	72	71	71	75	---	74	86	89	---
24	71	78	71	73	---	76	91	89	---
25	74	81	72	73	---	77	88	89	---
26	76	77	77	73	---	76	87	91	---
27	73	76	73	73	---	77	88	91	75
28	72	77	71	73	---	76	89	89	---
29	73	77	71	73	---	76	90	89	---
30	72	75	72	72	---	78	89	90	---
31	72	---	72	75	---	82	---	91	---
MEAN	71	74	73	73	81	76	86	87	85

WTR YR 1981 MEAN 78 MAX 92 MIN 66

02038880 VAUGHANS CREEK NEAR HIXBURG, VA--Continued

TEMPERATURE, WATER (DEG. C), JULY TO SEPTEMBER 1980
MEAN VALUES

DAY	JUL	AUG	SEP
1	---	23.5	23.0
2	---	23.5	23.0
3	---	24.5	23.0
4	---	24.0	23.0
5	---	24.0	23.0
6	---	24.0	22.0
7	---	24.0	22.0
8	---	24.0	20.5
9	---	24.0	20.0
10	---	24.0	20.5
11	---	24.0	18.5
12	---	24.5	18.5
13	---	23.0	19.0
14	22.5	22.0	20.0
15	22.5	23.0	21.0
16	24.0	23.5	20.0
17	24.5	20.5	20.5
18	23.5	20.0	21.5
19	23.5	21.0	20.0
20	24.5	22.0	20.0
21	24.5	21.5	22.0
22	24.5	20.5	22.5
23	23.0	---	23.0
24	22.5	---	21.0
25	22.0	---	19.0
26	22.5	21.0	19.5
27	22.5	20.5	16.0
28	23.0	21.0	14.5
29	23.0	21.0	15.0
30	22.5	21.5	16.5
31	22.5	22.0	---
MEAN	23.0	22.5	20.5

TEMPERATURE, WATER (DEG. C), OCTOBER 1980 TO JUNE 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1	16.5	9.0	6.5	3.5	.5	10.5	13.0	16.5	19.0
2	18.0	8.5	7.5	3.5	4.0	9.0	13.5	14.5	18.0
3	17.0	7.5	6.0	1.5	1.0	7.0	13.5	14.0	20.0
4	15.0	9.5	3.5	1.0	.5	5.5	16.0	15.0	22.0
5	13.5	10.5	5.5	.5	.5	7.0	16.5	16.5	21.0
6	13.5	8.0	7.0	.5	.5	7.0	13.0	17.5	---
7	11.5	9.0	8.5	.5	.5	6.0	11.0	16.0	---
8	12.5	12.0	9.0	.5	3.0	5.5	12.5	14.0	---
9	14.5	12.5	10.5	.5	2.0	6.5	14.0	14.5	---
10	15.5	11.5	11.0	.5	2.0	6.0	14.5	15.0	---
11	16.0	8.0	6.5	.5	6.0	6.5	16.5	17.0	---
12	13.5	6.0	5.0	.5	2.0	6.5	18.5	18.0	---
13	11.0	6.5	6.0	.5	1.0	9.0	14.5	16.0	---
14	10.0	8.5	5.0	.5	2.5	9.5	14.0	17.0	---
15	11.0	10.5	4.0	.5	3.0	7.0	15.0	18.5	---
16	12.5	9.5	5.0	.5	4.0	8.5	13.5	17.0	---
17	14.0	6.5	4.5	.5	6.0	6.5	14.0	16.5	---
18	16.5	6.5	3.0	.5	9.0	8.5	16.0	14.5	---
19	17.5	5.0	5.0	.5	9.5	6.0	16.0	12.0	---
20	14.5	4.0	2.5	.5	9.5	4.5	15.5	12.0	---
21	12.5	3.5	.5	.5	10.0	5.5	13.0	14.0	---
22	12.5	4.0	.5	1.5	11.0	5.5	13.0	16.0	---
23	12.0	5.0	.5	2.5	10.5	5.5	16.5	17.0	---
24	10.5	7.0	1.5	1.5	8.0	7.5	16.5	18.0	---
25	11.5	7.5	1.0	2.0	7.5	8.0	14.0	19.0	---
26	9.5	5.0	.5	3.5	7.0	8.5	14.0	20.0	---
27	8.0	5.5	.5	5.0	6.5	9.5	17.0	20.0	---
28	10.5	6.5	.5	4.5	8.5	9.5	19.0	19.5	---
29	11.5	5.5	2.5	3.0	---	11.0	18.5	19.5	---
30	10.5	5.5	4.5	2.0	---	13.0	16.5	20.5	---
31	9.0	---	3.5	.5	---	13.5	---	21.5	---
MEAN	13.0	7.5	4.5	1.5	5.0	7.5	15.0	16.5	20.0

WTR YR 1981 MEAN 9.0 MAX 22.0 MIN .5

02039000 BUFFALO CREEK NEAR HAMPDEN SYDNEY, VA

LOCATION.--Lat 37°15'25", long 78°29'12", Prince Edward County, Hydrologic Unit 02080207, on left bank 100 ft (30 m) upstream from bridge on State Highway 658, 0.8 mi (1.3 km) upstream from Locket Creek, 2.0 mi (3.2 km) northwest of Hampden Sydney, and 6.0 mi (9.7 km) southwest of Farmville.

DRAINAGE AREA.--69.7 mi^2 (180.5 km^2).

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1303: 1948-50(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 339.19 ft (103.385 m) National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation). Prior to Aug. 19, 1953, nonrecording gage at same site and datum.

REMARKS.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 66.6 ft^3/s (1.886 m^3/s), 12.98 in/yr (330 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,160 ft^3/s (259 m^3/s) June 21, 1972, gage height, 12.38 ft (3.773 m), from rating curve extended above 1,600 ft^3/s (45 m^3/s) on basis of slope-area measurement at gage height 11.96 ft (3.645 m); minimum daily, 2.7 ft^3/s (0.076 m^3/s) Oct. 7, 8, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 15 ft (4.6 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 424 ft^3/s (12.0 m^3/s) Sept. 7, gage height, 5.32 ft (1.622 m), no peak above base of 500 ft^3/s (14 m^3/s); minimum, 8.2 ft^3/s (0.23 m^3/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	32	32	26	44	41	47	31	28	8.8	22	18
2	26	31	31	25	59	40	48	29	29	16	19	16
3	32	30	30	25	62	38	42	26	27	50	16	15
4	32	36	29	24	69	38	39	25	25	90	15	19
5	27	43	28	24	64	45	57	25	24	65	14	26
6	26	37	27	23	57	43	132	25	24	43	13	23
7	23	35	26	22	39	40	81	30	200	34	18	282
8	23	33	26	22	48	38	60	26	135	28	50	164
9	23	32	26	24	47	38	56	25	80	23	34	82
10	23	35	28	24	43	37	57	27	50	21	28	50
11	26	33	27	22	158	36	51	31	30	20	25	36
12	27	31	26	20	190	35	47	28	25	17	24	28
13	25	30	25	20	102	34	51	25	22	16	25	23
14	25	30	24	21	72	33	48	24	21	15	23	21
15	25	30	24	23	60	32	51	23	20	13	17	20
16	25	29	24	23	53	33	46	21	18	12	15	32
17	26	31	25	23	50	35	44	20	16	15	16	28
18	28	57	24	24	48	34	44	20	16	14	15	24
19	60	45	24	24	48	33	40	36	16	12	14	22
20	45	39	23	28	95	33	43	38	16	11	16	19
21	38	36	22	31	87	32	42	32	16	11	14	18
22	34	33	21	39	67	32	39	27	14	10	13	17
23	32	30	21	40	59	42	38	24	13	12	12	15
24	32	41	20	38	54	44	51	23	13	59	11	14
25	44	50	20	35	49	40	44	21	12	40	11	13
26	43	42	21	34	46	38	39	20	13	26	10	13
27	38	40	21	35	43	36	36	19	16	22	9.8	12
28	36	45	22	34	42	35	34	26	14	21	9.4	12
29	36	41	23	33	---	32	32	24	13	42	9.0	12
30	35	36	24	31	---	41	31	22	11	30	19	12
31	35	---	25	41	---	53	---	20	---	25	21	---
TOTAL	978	1093	769	858	1855	1161	1470	793	957	821.8	558.2	1086
MEAN	31.5	36.4	24.8	27.7	66.3	37.5	49.0	25.6	31.9	26.5	18.0	36.2
MAX	60	57	32	41	190	53	132	38	200	90	50	282
MIN	23	29	20	20	39	32	31	19	11	8.8	9.0	12
CFSM	.45	.52	.36	.40	.95	.54	.70	.37	.46	.38	.26	.52
IN.	.52	.58	.41	.46	.99	.62	.78	.42	.51	.44	.30	.58

CAL YR 1980 TOTAL 24016.0 MEAN 65.6 MAX 564 MIN 13 CFSM .94 IN 12.82
WTR YR 1981 TOTAL 12400.0 MEAN 34.0 MAX 282 MIN 8.8 CFSM .49 IN 6.62

02039500 APPOMATTOX RIVER AT FARMVILLE, VA

LOCATION.--Lat 37°18'25", long 78°23'20", Cumberland County, Hydrologic Unit 02080207, on left bank at downstream side of bridge on State Highway 45 at north town limits of Farmville and 1.1 mi (1.8 km) downstream from Buffalo Creek.

DRAINAGE AREA.--303 mi^2 (785 km^2).

PERIOD OF RECORD.--March 1926 to current year.

REVISED RECORDS.--WSP 972: 1927-37, 1938(M). WSP 1303: 1927(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 281.93 ft (85.932 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 29, 1928, nonrecording gage at same site and datum.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by Prince Edward Mill 0.2 mi (0.3 km) upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--55 years, 286 ft^3/s (8.100 m^3/s), 12.82 in/yr (326 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,100 ft^3/s (937 m^3/s) June 22, 1972, gage height, 29.70 ft (9.053 m), from floodmarks, from rating curve extended above 12,000 ft^3/s (340 m^3/s) on basis of contracted-opening measurement of peak flow; minimum, 3.8 ft^3/s (0.11 m^3/s) Sept. 25, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,400 ft^3/s (39.7 m^3/s) Aug. 8, gage height, 10.35 ft (3.155 m), no peak above base of 1,900 ft^3/s (54 m^3/s); minimum, 31 ft^3/s (0.88 m^3/s) June 30, July 1, 23, Aug. 29; minimum gage height, 3.22 ft (0.981 m) June 30, July 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	84	99	152	107	95	159	186	119	103	33	57	98
2	87	93	145	102	191	150	176	113	108	59	47	66
3	103	90	139	99	261	140	155	104	105	103	46	56
4	104	102	134	88	159	134	135	98	145	228	49	56
5	93	136	127	92	160	166	174	95	189	305	64	85
6	86	141	118	125	166	186	393	96	141	163	47	95
7	81	117	116	114	157	161	324	118	551	157	58	366
8	78	109	116	127	159	142	235	110	418	106	899	522
9	76	108	116	130	151	134	203	97	219	80	271	292
10	72	113	121	110	138	130	196	99	148	66	144	181
11	72	113	119	102	508	122	179	123	112	76	106	124
12	72	107	105	98	781	108	159	127	88	71	142	95
13	63	112	104	96	375	105	184	103	81	61	133	80
14	62	148	102	95	262	103	200	91	79	50	96	68
15	63	163	100	98	215	98	196	85	74	45	76	64
16	65	165	100	110	190	100	182	82	67	41	65	92
17	67	175	101	124	180	106	166	78	62	44	60	122
18	74	247	99	119	167	104	174	75	57	43	61	103
19	127	265	97	103	171	99	166	117	57	40	56	83
20	135	205	92	99	556	98	162	164	53	37	57	70
21	106	182	71	109	636	96	186	152	51	36	52	62
22	92	172	108	137	336	96	165	117	49	35	51	57
23	83	165	113	149	262	117	151	98	45	34	46	55
24	81	187	114	131	239	146	191	87	43	76	40	49
25	104	261	100	117	212	136	191	80	43	497	39	47
26	134	224	103	118	190	119	154	74	43	209	38	46
27	129	186	131	121	171	112	138	70	41	117	38	45
28	107	194	120	118	162	107	130	96	38	111	36	42
29	102	191	124	109	---	104	121	96	35	132	34	40
30	102	169	121	101	---	122	117	87	33	96	55	41
31	103	---	113	80	---	191	---	78	---	69	109	---
TOTAL	2807	4739	3521	3428	7250	3891	5489	3129	3278	3220	3072	3202
MEAN	90.5	158	114	111	259	126	183	101	109	104	99.1	107
MAX	135	265	152	149	781	191	393	164	551	497	899	522
MIN	62	90	71	80	95	96	117	70	33	33	34	40
CFSM	.30	.52	.38	.37	.86	.42	.60	.33	.36	.34	.33	.35
IN.	.34	.58	.43	.42	.89	.48	.67	.38	.40	.40	.38	.39

CAL YR 1980 TOTAL 103307 MEAN 282 MAX 3760 MIN 44 CFSM .93 IN 12.68
WTR YR 1981 TOTAL 47026 MEAN 129 MAX 899 MIN 33 CFSM .43 IN 5.77

02040000 APPOMATTOX RIVER AT MATTOAX, VA

LOCATION.--Lat 37°25'17", long 77°51'33", Amelia County, Hydrologic Unit 02080207, on right bank 75 ft (23 m) upstream from Southern Railway bridge at Mattoax, 0.3 mi (0.5 km) upstream from Skinquarter Creek, and 3.7 mi (6.0 km) upstream from Flat Creek.

DRAINAGE AREA.--726 mi^2 (1,880 km^2).

PERIOD OF RECORD.--August 1900 to December 1905, March 1926 to current year.

REVISED RECORDS.--WSP 892: 1938. WSP 972: 1928, 1932, 1934-38. WSP 1303: 1901(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 174.51 ft (53.191 m) National Geodetic Vertical Datum of 1929. August 1900 to December 1905, nonrecording gage at same site, different datum. March 1926 to October 1936, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, Oct. 7 to Nov. 13, which are fair. Appomattox Water Authority gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--60 years, 721 ft^3/s (20.42 m^3/s), 13.49 in/yr (343 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft^3/s (991 m^3/s) Aug. 18, 1940, gage height, 35.3 ft (10.76 m), from floodmark in gage house, from rating curve extended above 20,000 ft^3/s (570 m^3/s) on basis of records for stations at Farmville and near Petersburg; minimum, 11 ft^3/s (0.31 m^3/s) Oct. 2, 1930, gage height, 3.52 ft (1.073 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,300 ft^3/s (65.1 m^3/s) Aug. 12, gage height, 14.63 ft (4.459 m), no peak above base of 4,000 ft^3/s (110 m^3/s); minimum, 68 ft^3/s (1.93 m^3/s) July 23, 24, gage height, 5.68 ft (1.731 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	200	325	269	283	360	502	271	202	73	164	111
2	136	190	299	251	301	349	458	266	238	75	125	135
3	205	185	282	239	440	344	410	252	287	108	107	121
4	246	185	271	230	554	330	368	236	268	215	108	101
5	228	240	264	130	375	336	349	222	254	454	110	94
6	206	248	257	125	322	371	617	216	385	637	106	99
7	166	252	250	150	343	385	862	222	327	399	115	127
8	150	220	246	190	351	362	667	236	1310	317	188	276
9	140	210	246	200	381	330	507	239	1540	242	1310	604
10	130	205	251	199	368	314	464	222	572	195	575	412
11	128	200	254	198	582	304	458	252	347	156	296	248
12	118	190	262	199	1720	298	430	299	275	132	1190	185
13	105	190	258	200	1820	285	401	303	230	132	1340	148
14	103	194	248	220	996	275	418	260	205	124	414	126
15	104	202	245	230	650	269	438	224	191	109	250	116
16	100	230	242	240	544	268	436	222	181	97	190	150
17	98	242	238	240	482	275	408	201	165	92	153	181
18	140	306	239	248	462	279	381	189	150	86	133	234
19	190	388	238	280	446	272	368	221	138	86	120	192
20	300	412	228	323	507	266	371	317	133	85	116	153
21	315	339	214	338	887	254	383	407	133	80	111	130
22	220	296	162	360	1070	251	383	371	122	74	108	114
23	180	275	165	416	667	266	363	290	110	70	102	103
24	165	291	170	436	544	301	412	242	104	71	98	96
25	190	381	180	410	494	349	438	209	97	93	93	91
26	265	492	185	381	448	346	424	191	92	529	85	86
27	290	422	188	360	403	307	357	178	86	396	79	81
28	260	370	200	359	373	287	323	182	84	248	75	79
29	220	378	235	328	---	277	301	232	82	232	73	75
30	215	359	265	301	---	282	285	250	78	319	77	73
31	212	---	260	291	---	373	---	232	---	239	79	---
TOTAL	5650	8292	7367	8341	16813	9565	12982	7654	8386	6165	8090	4741
MEAN	182	276	238	269	600	309	433	247	280	199	261	158
MAX	315	492	325	436	1820	385	862	407	1540	637	1340	604
MIN	98	185	162	125	283	251	285	178	78	70	73	73
CFSM	.25	.38	.33	.37	.83	.43	.60	.34	.39	.27	.36	.22
IN.	.29	.42	.38	.43	.86	.49	.67	.39	.43	.32	.41	.24

CAL YR 1980 TOTAL 257560 MEAN 704 MAX 4320 MIN 82 CFSM .97 IN 13.20
WTR YR 1981 TOTAL 104046 MEAN 285 MAX 1820 MIN 70 CFSM .39 IN 5.33

02041000 DEEP CREEK NEAR MANNBORO, VA

LOCATION.--Lat 37°16'59", long 77°52'12", Amelia County, Hydrologic Unit 02080207, on left bank 300 ft (91 m) upstream from bridge on State Highway 153, 0.9 mi (1.4 km) upstream from Sweathouse Creek, 3.4 mi (5.5 km) northwest of Mannboro, and 7.5 mi (12.1 km) southeast of Amelia.

DRAINAGE AREA.--158 mi² (409 km²).

PERIOD OF RECORD.--September 1946 to current year.

REVISED RECORDS.--WSP 1203: 1948 (calendar year figures only). WSP 2104: Drainage area. WDR VA-79-1: 1973-76(P), 1978.

GAGE.--Water-stage recorder. Datum of gage is 177.20 ft (54.011 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 2, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 150 ft³/s (4.248 m³/s), 12.89 in/yr (327 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,000 ft³/s (425 m³/s) Oct. 6, 1972, gage height, 24.04 ft (7.327 m), from high-water mark, from rating curve extended above 3,900 ft³/s (110 m³/s); minimum, 0.03 ft³/s (<0.001 m³/s) Oct. 4, 5, 1968; minimum gage height, 0.29 ft (0.884 m) Aug. 9-12, 1957.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 14.8 ft (4.51 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,500 ft³/s (42.5 m³/s) at 1130 hours June 8, gage height, 7.67 ft (2.338 m), no other peak above base of 1,200 ft³/s (34 m³/s); minimum, 7.5 ft³/s (0.21 m³/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	54	91	73	61	73	115	31	45	13	19	25
2	18	51	81	67	85	72	100	31	51	28	17	24
3	20	46	75	61	132	69	83	25	68	30	16	24
4	45	46	69	50	92	71	72	22	60	104	35	22
5	50	69	68	47	78	120	68	21	83	216	61	23
6	49	78	66	33	67	133	96	22	87	219	36	24
7	43	73	63	38	78	121	107	24	371	101	38	30
8	38	62	64	42	91	78	94	26	1280	67	84	36
9	30	53	65	44	102	68	80	25	741	49	153	31
10	24	52	69	43	98	62	88	26	156	38	78	26
11	20	53	70	40	176	59	86	75	88	31	46	23
12	19	53	69	37	353	57	79	212	65	26	41	21
13	17	47	67	35	282	54	83	182	54	24	35	18
14	16	44	62	31	152	52	96	100	50	22	30	16
15	16	46	59	40	121	50	96	69	45	20	25	15
16	14	47	60	50	106	51	90	54	41	18	21	80
17	14	49	60	47	97	63	79	45	37	18	18	113
18	14	88	59	48	90	68	76	41	34	17	16	111
19	88	115	59	51	94	64	68	60	31	16	16	71
20	180	107	57	56	149	61	65	126	30	15	17	39
21	126	86	48	65	220	54	68	148	28	15	17	27
22	72	71	46	88	185	50	66	116	26	14	16	20
23	42	64	43	89	141	65	60	80	24	12	16	14
24	30	78	42	87	122	105	60	62	21	12	16	12
25	64	163	43	82	104	112	64	48	20	20	16	10
26	147	190	45	82	92	91	55	40	18	37	15	9.6
27	135	134	48	75	82	78	50	33	16	48	17	9.2
28	96	119	50	76	75	70	43	40	15	47	16	8.5
29	72	114	68	72	---	66	38	64	14	37	20	7.9
30	60	104	80	66	---	70	32	68	13	29	21	8.2
31	58	---	80	53	---	111	---	56	---	22	23	---
TOTAL	1631	2356	1926	1768	3525	2318	2257	1972	3612	1365	995	898.4
MEAN	52.6	78.5	62.1	57.0	126	74.8	75.2	63.6	120	44.0	32.1	29.9
MAX	180	190	91	89	353	133	115	212	1280	219	153	113
MIN	14	44	42	31	61	50	32	21	13	12	15	7.9
CFSM	.33	.50	.39	.36	.80	.47	.48	.40	.76	.28	.20	.19
IN.	.38	.55	.45	.42	.83	.55	.53	.46	.85	.32	.23	.21

CAL YR 1980 TOTAL 72638.8 MEAN 198 MAX 1890 MIN 6.2 CFSM 1.25 IN 17.10
WTR YR 1981 TOTAL 24623.4 MEAN 67.5 MAX 1280 MIN 7.9 CFSM .43 IN 5.80

02041650 APPOMATTOX RIVER AT MATOACA, VA
(National stream-quality accounting network station)

LOCATION.--Lat 37°13'28", long 77°28'32", Chesterfield County, Hydrologic Unit 02080207, on left bank at upstream side of bridge on State Highway 600, 0.2 mi (0.3 km) south of Matoaca, 2.0 mi (3.2 km) upstream from Rohoic Creek, 2.8 mi (4.5 km) downstream from Lake Chesdin, 3.5 mi (5.6 km) west of Petersburg, and at mile 15.9 (25.6 km).

DRAINAGE AREA.--1,344 mi² (3,481 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1969 to current year.

GAGE.--Water-stage recorder. Datum of gage is 68.30 ft (20.818 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by Appomattox Water Authority at Lake Chesdin, capacity, 36,500 acre-ft (45.0 hm³), 2.8 mi (4.5 km) upstream, from which an average of 12.4 ft³/s (0.35 m³/s) is diverted for industrial and municipal use. Records do not include flow of Upper Appomattox Canal of city of Petersburg which diverts around station. National Weather Service gage-height telemeter at station.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--12 years, 1,551 ft³/s (43.92 m³/s), 15.67 in/yr (398 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,800 ft³/s (1,160 m³/s) Oct. 7, 1972, gage height, 18.39 ft (5.605 m); minimum, 42 ft³/s (1.19 m³/s) Aug. 28, 30, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,650 ft³/s (103 m³/s) June 9, gage height, 6.07 ft (1.850 m); minimum, 60 ft³/s (1.70 m³/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	363	561	455	366	534	639	443	406	75	303	96
2	199	342	529	493	464	528	747	385	394	102	246	109
3	241	318	494	445	579	504	646	372	417	134	202	139
4	303	348	436	435	713	460	586	355	459	438	231	156
5	324	381	430	160	694	531	579	329	457	820	220	151
6	339	384	425	185	531	574	754	330	477	1160	213	145
7	300	390	414	240	492	623	931	361	1380	990	243	155
8	278	405	405	325	570	550	1080	332	2120	632	277	181
9	258	393	401	353	581	516	908	352	3410	470	479	311
10	247	408	413	363	577	480	764	365	2320	376	1100	481
11	236	363	418	357	781	479	704	577	952	305	671	436
12	252	351	407	351	1660	435	686	962	548	249	509	351
13	213	316	419	330	2650	432	666	900	449	216	1470	283
14	194	332	404	320	2410	449	655	668	402	197	1120	234
15	192	334	386	306	1330	375	665	537	336	172	553	227
16	189	349	394	300	899	449	629	472	303	135	404	333
17	181	371	388	310	730	401	639	415	275	142	310	372
18	184	459	375	330	638	399	620	379	245	135	242	451
19	360	499	386	335	628	440	541	423	233	118	215	426
20	472	576	368	353	789	428	581	585	226	95	215	346
21	563	598	350	397	1100	400	551	763	224	98	176	291
22	506	516	314	429	1480	366	562	781	208	106	192	255
23	399	464	303	461	1410	440	554	631	173	83	192	237
24	330	488	295	487	1080	486	618	511	140	65	170	177
25	461	625	320	496	876	525	561	440	141	82	167	138
26	542	733	340	494	707	542	580	381	145	107	150	127
27	577	807	338	503	603	547	553	320	110	369	145	124
28	526	748	337	511	560	471	506	385	93	412	127	141
29	461	652	381	504	---	451	472	426	80	384	64	95
30	424	599	447	452	---	460	431	438	67	336	72	90
31	384	---	466	417	---	543	---	426	---	334	88	---
TOTAL	10345	13912	12344	11897	25898	14818	19408	15044	17190	9337	10766	7058
MEAN	334	464	398	384	925	478	647	485	573	301	347	235
MAX	577	807	561	511	2650	623	1080	962	3410	1160	1470	481
MIN	181	316	295	160	366	366	431	320	67	65	64	90

CAL YR 1980 TOTAL 503556 MEAN 1376 MAX 9340 MIN 45
WTR YR 1981 TOTAL 168017 MEAN 460 MAX 3410 MIN 64

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)
NOV 04...	0800	324	90	7.7	13.0	.70	10.4	<1	45	26	1
JAN 13...	0845	330	90	7.6	.0	1.9	10.6	K1	K6	28	6
MAR 04...	1130	444	83	7.1	9.5	24	11.7	K5	K7	22	2
MAY 06...	1030	315	93	7.8	18.0	.70	11.1	K5	97	27	2
JUL 07...	0900	1060	83	7.6	27.0	3.4	--	37	240	26	0
SEP 09...	1000	280	91	7.4	22.0	4.5	--	42	130	32	0

K Result based on colony count outside optimal range.
< Actual value is known to be less than the value shown.

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 04...	5.8	2.8	5.6	2.5	25	5.4	4.7	.1	17	65	60
JAN 13...	6.4	2.8	6.0	2.0	22	6.8	5.4	.1	19	68	62
MAR 04...	5.2	2.2	5.6	1.9	20	9.7	5.6	<.1	--	72	--
MAY 06...	6.1	2.8	5.8	1.9	25	6.4	5.2	<.1	16	55	60
JUL 07...	6.3	2.6	5.2	2.5	26	5.0	4.1	.1	16	62	58
SEP 09...	7.2	3.3	5.0	2.5	32	4.8	4.2	.1	14	74	63

< Actual value is known to be less than the value shown.

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
NOV 04...	.14	.13	.060	.070	.22	.25	.36	.38	.030	.015	1
JAN 13...	.12	.12	.020	.020	.15	.13	.27	.25	.020	.010	--
MAR 04...	.34	.30	.080	.060	.40	.35	.74	.65	.040	.020	--
MAY 06...	.04	.04	.060	.050	.41	.32	.45	.36	.020	.020	<1
JUL 07...	.04	.04	<.010	<.010	.59	.42	.63	.46	.050	<.010	1
SEP 09...	.28	.26	.100	.070	.52	.39	.80	.65	.030	.010	2

< Actual value is known to be less than the value shown.

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)
NOV 04...	1	100	30	<1	<1	10	10	<1	<1	2	<1
JAN 13...	--	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--	--
MAY 06...	<1	100	30	1	<1	10	<10	2	<1	4	2
JUL 07...	1	100	30	1	<1	10	<10	2	1	5	4
SEP 09...	1	100	100	1	<1	10	<10	<1	<1	7	5

< Actual value is known to be less than the value shown.

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)
NOV 04...	570	50	2	<1	120	6	<.1	<.1	2	<1	<1
JAN 13...	--	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--	--
MAY 06...	3400	60	1	<1	60	10	<.1	<.1	4	6	<1
JUL 07...	500	130	6	4	170	10	.2	.2	7	7	<1
SEP 09...	1700	740	6	4	770	460	.2	.2	12	3	<1

< Actual value is known to be less than the value shown.

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 04...	<1	<1	<1	10	<4	--	5.8	.7	2700	10	85
JAN 13...	--	--	--	--	--	4.6	--	--	--	6	58
MAR 04...	--	--	--	--	--	5.3	--	--	180	13	100
MAY 06...	<1	2	1	10	<4	--	3.4	.6	670	15	44
JUL 07...	<1	<1	<1	20	<4	--	17	--	57000	15	81
SEP 09...	<1	<1	<1	20	<4	--	7.0	--	5700	20	100

< Actual value is known to be less than the value shown.

02041650 APPOMATTOX RIVER AT MATOACA, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	NOV 4,80	MAR 4,81	MAY 6,81	JUL 7,81	SEP 9,81
TIME	0800	1130	1030	0900	1000
TOTAL CELLS/ML	4700	180	670	57000	5700
DIVERSITY: DIVISION	1.7	1.5	1.5	0.3	1.5
.CLASS	1.7	1.5	1.5	0.3	1.5
..ORDER	2.3	1.8	1.9	0.6	2.1
...FAMILY	3.0	2.0	2.1	0.7	2.5
....GENUS	3.3	2.7	2.1	0.7	3.3

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...COELASTRACEAE										
....COELASTRUM	130	5	--	-	--	-	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	230	8	26	14	--	-	330	1	190	3
....CHODATELLA	--	-	64#	36	--	-	--	-	--	-
....CLOSTERIOPSIS	--	-	--	-	--	-	*	0	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	*	0	--	-
....OOCYSTIS	--	-	--	-	--	-	*	0	--	-
....SELENASTRUM	64	2	13	7	--	-	*	0	--	-
....TETRAEDRON	90	3	--	-	--	-	*	0	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	810	1	550	10
....SCENEDESMUS	540#	20	--	-	52	8	300	1	980#	17
....TETRASTRUM	--	-	--	-	--	-	--	-	550	10
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	26	1	--	-	26	4	*	0	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....EUASTRUM	--	-	--	-	--	-	*	0	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	77	3	13	7	120#	17	*	0	570	10
....MELOSIRA	460#	17	--	-	--	-	--	-	710	13
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	13	2	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-	270	5
...FRAGILARIACEAE										
....FRAGILARIA	26	1	13	7	--	-	*	0	--	-
....SYNEDRA	52	2	--	-	13	2	*	0	710	13
...NAVICULACEAE										
....NAVICULA	*	0	--	-	13	2	--	-	140	2
...NITZSCHIACEAE										
....NITZSCHIA	190	7	26	14	52	8	*	0	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	--	-	440	8
....ANACYSTIS	430#	15	--	-	370#	56	3400	6	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....APHANIZOMENON	370	14	--	-	--	-	--	-	--	-
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	51000#	90	--	-
....OSCILLATORIA	--	-	--	-	--	-	--	-	570	10
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....TRACHELOMONAS	*	0	13	7	--	-	*	0	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	26	1	13	7	13	2	*	0	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA

LOCATION.--Lat 37°26'10", long 77°03'40", New Kent County, Hydrologic Unit 02080206, on left bank 100 ft (30 m) downstream from bridge on State Highway 618, 1.1 mi (1.8 km) southwest of Providence Forge, and 1.7 mi (2.7 km) downstream from Schiminoe Creek.

DRAINAGE AREA.--248 mi^2 (642 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1942 to current year.

REVISED RECORDS.--WSP 1553: 1956. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 6.07 ft (1.850 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, June 17 to Aug. 18, which are fair.

AVERAGE DISCHARGE.--39 years, 263 ft^3/s (7.448 m^3/s), 14.40 in/yr (366 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,710 ft^3/s (218 m^3/s) Aug. 15, 1955, gage height, 11.67 ft (3.557 m); minimum, 0.70 ft^3/s (0.020 m^3/s) July 7, 1977; minimum gage height, 1.53 ft (0.466 m) Sept. 13, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 450 ft^3/s (12.7 m^3/s) June 4, gage height, 6.55 ft (1.996 m); minimum, 4.7 ft^3/s (0.13 m^3/s) Sept. 15, gage height, 1.82 ft (0.555 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	173	174	70	78	205	102	112	260	34	28	7.9
2	61	175	166	68	89	178	110	100	350	32	26	6.9
3	79	158	152	64	114	156	116	88	414	30	23	5.8
4	95	136	142	54	116	131	131	78	447	29	22	5.4
5	78	137	131	49	112	127	140	70	412	32	24	5.7
6	82	119	118	53	109	161	193	59	339	45	28	6.3
7	81	112	107	53	122	155	219	56	306	69	33	6.5
8	90	106	98	55	152	147	239	50	266	93	38	6.8
9	83	94	97	53	170	135	211	45	228	134	40	6.1
10	62	86	94	56	162	129	201	42	198	166	37	6.0
11	54	78	90	46	172	123	222	47	162	208	33	5.8
12	46	72	84	39	216	112	218	60	124	245	30	5.8
13	43	68	80	34	223	102	195	89	99	242	28	5.6
14	37	62	76	31	244	93	176	130	88	222	28	5.1
15	30	59	69	33	238	84	170	190	86	198	30	5.1
16	23	56	65	39	257	78	156	270	72	165	32	24
17	16	55	64	44	288	79	141	295	66	138	35	50
18	12	82	62	45	261	79	132	275	68	98	40	90
19	61	93	60	44	212	79	127	245	72	76	45	109
20	138	95	58	48	190	77	133	215	78	62	52	90
21	252	101	52	57	203	76	151	225	84	54	46	79
22	342	99	45	70	208	72	141	248	92	50	40	74
23	247	97	51	79	226	78	134	267	89	48	45	71
24	160	111	56	82	242	90	130	262	84	46	42	73
25	167	157	56	83	281	92	123	235	70	45	32	77
26	192	160	49	86	312	92	121	175	57	48	24	75
27	193	165	59	90	287	86	122	140	49	50	20	62
28	258	168	56	96	239	83	124	128	44	49	15	44
29	239	162	66	104	---	81	121	120	42	43	10	28
30	192	166	70	106	---	83	116	138	37	37	10	18
31	172	---	71	94	---	97	---	175	---	32	9.4	---
TOTAL	3628	3402	2618	1925	5523	3360	4615	4629	4783	2820	945.4	1054.8
MEAN	117	113	84.5	62.1	197	108	154	149	159	91.0	30.5	35.2
MAX	342	175	174	106	312	205	239	295	447	245	52	109
MIN	12	55	45	31	78	72	102	42	37	29	9.4	5.1
CFSM	.47	.46	.34	.25	.79	.44	.62	.60	.64	.37	.12	.14
IN.	.54	.51	.39	.29	.83	.50	.69	.69	.72	.42	.14	.16

CAL YR 1980 TOTAL 99920.7 MEAN 273 MAX 1890 MIN 6.0 CFSM 1.10 IN 14.99
WTR YR 1981 TOTAL 39303.2 MEAN 108 MAX 447 MIN 5.1 CFSM .44 IN 5.90

02042500 CHICKAHOMINY RIVER NEAR PROVIDENCE FORGE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-70, 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 06...	0800	82	95	6.4	14.5	15	--	27	19	8.1	1.7	7.0
NOV 05...	1030	141	123	5.8	10.0	5	--	26	18	7.6	1.8	9.0
DEC 03...	0915	153	140	6.0	7.0	10	--	26	14	7.1	2.1	11
JAN 09...	1100	46	140	7.1	.0	20	--	30	15	8.7	2.1	10
FEB 10...	0820	163	178	7.3	1.0	10	--	29	14	8.0	2.2	17
MAR 05...	0800	138	149	6.8	7.5	20	--	25	7	7.0	1.9	16
APR 07...	1515	221	120	6.5	14.0	70	--	23	7	6.8	1.5	11
MAY 06...	1000	60	149	7.1	16.0	85	--	32	8	9.1	2.2	14
JUN 02...	0830	309	80	7.0	22.0	100	5.2	22	5	6.6	1.4	7.7
JUL 09...	1100	134	114	6.8	26.0	1	--	30	3	9.1	1.8	13
AUG 27...	1300	20	112	7.2	22.0	20	--	27	0	8.0	1.7	11
SEP 08...	1030	6.2	111	6.8	21.5	15	--	30	1	8.9	1.8	8.8

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 06...	1.3	8.0	19	8.6	.1	11	85	62	--	--	--	200
NOV 05...	3.2	8.0	24	15	<.1	8.3	83	74	<.010	.01	<.010	160
DEC 03...	5.5	12	20	20	<.1	8.8	87	82	<.010	.01	.010	130
JAN 09...	4.5	15	13	19	<.1	8.3	81	75	<.010	.11	.020	310
FEB 10...	4.0	15	18	30	<.1	6.9	107	95	<.010	.17	<.010	160
MAR 05...	3.3	18	17	22	<.1	3.3	98	82	<.010	.07	<.010	200
APR 07...	2.5	16	8.8	17	.1	3.7	78	62	<.010	.03	.020	740
MAY 06...	2.6	24	5.2	20	.1	4.6	88	73	<.010	.11	.020	1100
JUN 02...	1.7	17	5.7	10	.1	7.0	84	52	.010	.09	.050	1600
JUL 09...	.9	27	19	9.5	.1	9.3	93	80	<.010	.06	<.010	820
AUG 27...	.3	30	3.3	14	.1	8.5	68	65	.020	.10	.020	390
SEP 08...	.3	29	1.3	11	.1	7.4	68	57	<.010	.90	.030	340

< Actual value is known to be less than the value shown.

02043500 CYPRESS SWAMP AT CYPRESS CHAPEL, VA

LOCATION.--Lat 36°37'24", long 76°36'07", Nansemond County, Hydrologic Unit 03010205, near center of span on downstream side of highway bridge on State Highway 32, 0.5 mi (0.8 km) downstream from Dragon Swamp, 0.8 mi (1.3 km) northwest of Cypress Chapel, and 6.5 mi (10.5 km) south of Suffolk.

DRAINAGE AREA.--23.8 mi² (61.6 km²).

PERIOD OF RECORD.--October 1953 to September 1971, March 1978 to current year.

GAGE.--Water-stage recorder. Datum of gage is 28.65 ft (8.733 m) National Geodetic Vertical Datum of 1929. October 1953 to September 1971, recording gage on right bank 30 ft (9.1 m) upstream at same datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--21 years, 27.9 ft³/s (0.790 m³/s), 15.92 in/yr (404 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft³/s (37.7 m³/s) Aug. 11, 1967, gage height, 6.85 ft (2.088 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 252 ft³/s (7.14 m³/s) June 3, gage height, 4.45 ft (1.356 m), no other peak above base of 200 ft³/s (5.7 m³/s); no flow Oct. 1 to Dec. 11 and many days May to September.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	5.4	1.2	5.8	22	1.0	.00	.00	.00	.34
2	.00	.00	.00	4.2	3.0	5.0	15	.83	.25	.00	.00	.15
3	.00	.00	.00	3.0	8.7	3.9	10	.71	232	.00	.00	.00
4	.00	.00	.00	2.7	8.2	3.2	7.3	.62	166	.00	.00	.00
5	.00	.00	.00	2.5	5.8	5.8	5.8	.52	183	.03	.00	.00
6	.00	.00	.00	1.8	4.2	8.7	20	.46	143	.06	.00	.00
7	.00	.00	.00	2.0	3.9	8.2	27	.65	178	1.3	.00	.00
8	.00	.00	.00	2.0	8.2	6.3	19	.74	157	1.0	.00	.00
9	.00	.00	.00	1.8	9.7	5.0	12	.68	57	.80	.00	1.0
10	.00	.00	.00	1.8	7.3	3.9	9.7	.58	21	.43	.00	1.2
11	.00	.00	.00	1.5	11	3.2	7.7	1.0	7.3	.09	.00	1.0
12	.00	.00	1.0	1.3	24	3.0	5.8	1.8	2.2	.00	.00	.77
13	.00	.00	1.2	1.2	20	2.5	5.0	.98	1.1	.00	.00	.52
14	.00	.00	1.1	1.1	14	2.2	3.9	.77	.89	.00	.00	.28
15	.00	.00	1.1	1.1	10	1.8	3.2	.65	.65	.00	.00	.06
16	.00	.00	1.0	1.1	8.2	2.2	2.5	.65	.40	.00	.00	.03
17	.00	.00	.98	1.2	7.3	4.6	1.8	.43	.12	.00	.00	.12
18	.00	.00	.95	1.2	6.3	5.0	1.5	.25	.00	.00	.00	.06
19	.00	.00	.95	1.2	5.8	4.6	1.2	.18	.00	.00	.06	.00
20	.00	.00	.92	1.5	11	3.9	1.8	.52	.00	.00	1.0	.00
21	.00	.00	.89	3.0	26	3.0	3.5	.71	.00	.00	6.8	.00
22	.00	.00	.80	5.4	23	2.2	3.0	.65	.00	.00	25	.00
23	.00	.00	.89	5.0	18	12	2.2	.37	.00	.00	141	.00
24	.00	.00	1.2	3.9	17	24	7.7	.09	.00	.00	115	.00
25	.00	.00	1.7	3.2	13	18	8.2	.00	.00	.00	40	.00
26	.00	.00	1.5	2.7	9.7	11	4.2	.00	.00	.00	13	.00
27	.00	.00	1.2	2.5	7.7	8.7	2.5	.00	.00	.00	4.6	.00
28	.00	.00	1.1	2.0	6.3	6.8	1.7	.00	.00	.00	1.3	.00
29	.00	.00	2.2	1.7	---	5.0	1.2	.12	.00	.00	.95	.00
30	.00	.00	5.0	1.3	---	5.8	1.0	.00	.00	.00	.74	.00
31	.00	---	5.8	1.2	---	20	---	.00	---	.00	.55	---
TOTAL	.00	.00	31.48	71.5	298.5	205.3	217.4	15.96	1149.91	3.71	350.00	5.53
MEAN	.000	.000	1.02	2.31	10.7	6.62	7.25	.51	38.3	.12	11.3	.18
MAX	.00	.00	5.8	5.4	26	24	27	1.8	232	1.3	141	1.2
MIN	.00	.00	.00	1.1	1.2	1.8	1.0	.00	.00	.00	.00	.00
CFSM	.000	.000	.04	.10	.45	.28	.31	.02	1.61	.005	.48	.008
IN.	.00	.00	.05	.11	.47	.32	.34	.02	1.80	.01	.55	.01

CAL YR 1980 TOTAL 6915.09 MEAN 18.9 MAX 194 MIN .00 CFSM .79 IN 10.81
WTR YR 1981 TOTAL 2349.29 MEAN 6.44 MAX 232 MIN .00 CFSM .27 IN 3.67

02043550 WASHINGTON DITCH NEAR CYPRESS CHAPEL, VA

LOCATION.--Lat 36°38'21", long 76°31'36", Suffolk City, Hydrologic Unit 03010205, on left bank 400 ft (122 m) downstream from junction with Lynn Ditch and 3.0 mi (4.8 km) above Lake Drummond.

DRAINAGE AREA.--41 mi^2 (106 km^2), approximately.

PERIOD OF RECORD.--October 1978 to September 1981 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 15.00 ft (4.572 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some flow bypasses gage above stage of 7.0 ft. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 220 ft^3/s (6.23 m^3/s) Mar. 8, 1980; no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 111 ft^3/s (3.14 m^3/s) June 3, gage height, 8.44 ft (2.573 m); no flow Oct. 1 to Dec. 11, July 24 to Aug. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	3.2	3.6	11	22	3.5	.69	.48	.00	1.7
2	.00	.00	.00	2.6	6.2	9.8	24	2.6	12	.46	.00	1.2
3	.00	.00	.00	2.3	8.9	8.7	21	2.1	101	.56	.00	.89
4	.00	.00	.00	2.0	9.7	8.1	17	1.8	108	1.3	.00	.78
5	.00	.00	.00	1.7	9.6	11	15	1.5	108	1.0	.00	.74
6	.00	.00	.00	1.5	8.7	12	24	1.3	104	.93	.00	.71
7	.00	.00	.00	1.5	8.3	12	27	1.7	104	3.8	.00	.72
8	.00	.00	.00	1.6	13	12	27	1.6	102	6.0	.00	.98
9	.00	.00	.00	1.5	13	11	25	1.4	99	2.2	.00	2.4
10	.00	.00	.00	1.5	13	10	21	1.3	93	1.2	.00	4.9
11	.00	.00	.00	1.3	18	9.2	17	1.4	76	.81	.00	3.2
12	.00	.00	.03	1.2	20	8.4	14	4.3	58	.67	.00	2.0
13	.00	.00	1.7	1.0	21	7.9	14	5.2	41	.59	.00	1.5
14	.00	.00	1.9	.97	21	7.3	12	3.1	22	.52	.00	1.1
15	.00	.00	1.7	.97	18	6.6	11	2.8	11	.45	.00	.88
16	.00	.00	1.6	1.1	15	7.1	9.2	2.3	4.6	.37	.00	.82
17	.00	.00	1.6	1.3	13	8.4	8.0	1.6	2.3	.40	.00	.89
18	.00	.00	1.5	1.3	11	8.6	7.0	1.2	1.7	.41	.00	1.2
19	.00	.00	1.4	1.2	11	9.1	5.9	1.1	1.7	.32	.00	1.4
20	.00	.00	1.3	1.3	13	9.2	7.4	1.6	1.5	.22	.15	1.0
21	.00	.00	1.2	1.8	17	8.5	8.1	2.0	1.2	.16	.46	.81
22	.00	.00	1.1	2.9	22	7.7	7.7	1.7	1.0	.13	4.4	.70
23	.00	.00	1.4	3.2	24	16	7.2	1.2	.91	.06	60	.63
24	.00	.00	2.0	3.6	22	22	12	1.1	.85	.00	83	.56
25	.00	.00	2.3	5.5	19	25	11	.97	.79	.00	90	.50
26	.00	.00	2.2	5.9	16	24	12	.83	.72	.00	70	.45
27	.00	.00	2.0	5.9	14	20	10	.71	.71	.00	35	.40
28	.00	.00	1.9	5.6	12	16	8.1	.82	.68	.00	15	.34
29	.00	.00	2.6	5.1	---	13	6.1	.87	.62	.00	7.0	.24
30	.00	.00	3.3	4.5	---	15	4.4	.79	.55	.00	3.9	.16
31	.00	---	3.7	4.0	---	24	---	.72	---	.00	2.5	---
TOTAL	.00	.00	36.43	79.04	401.0	378.6	415.1	55.11	1059.52	23.04	371.41	33.80
MEAN	.000	.000	1.18	2.55	14.3	12.2	13.8	1.78	35.3	.74	12.0	1.13
MAX	.00	.00	3.7	5.9	24	25	27	5.2	108	6.0	90	4.9
MIN	.00	.00	.00	.97	3.6	6.6	4.4	.71	.55	.00	.00	.16
CFSM	.000	.000	.03	.06	.35	.30	.34	.04	.86	.02	.29	.03
IN.	.00	.00	.03	.07	.36	.34	.38	.05	.96	.02	.34	.03

CAL YR 1980 TOTAL 8933.98 MEAN 24.4 MAX 220 MIN .00 CFSM .60 IN 8.11
WTR YR 1981 TOTAL 2853.05 MEAN 7.82 MAX 108 MIN .00 CFSM .19 IN 2.59

02043600 LAKE DRUMMOND IN GREAT DISMAL SWAMP, VA

LOCATION.--Lat 36°35'42", long 76°26'23", Chesapeake City, Hydrologic Unit 03010205, on right bank in outlet canal, 200 ft (61 m) upstream from dam and gates, 0.5 mi (0.8 km) downstream from Lake Drummond, 3.1 mi (5.0 km) north of North Carolina State line, and 20 mi (32 km) southwest of Norfolk.

PERIOD OF RECORD.--May 1926 to current year. Prior to October 1973, published as Lake Drummond in Dismal Swamp.

REVISED RECORDS.--WSP 1032: 1934-43.

GAGE.--Water-stage recorder. Datum of gage is 12.16 ft (3.706 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 22, 1978, nonrecording gage at same site and datum.

REMARKS.--Mean daily gage heights are shown in table below.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 6.68 ft (2.036 m) Sept. 17, 1960; minimum, -0.67 ft (-0.204 m) Nov. 3, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 5.50 ft (1.676 m) June 7; minimum, 2.79 ft (0.850 m) Oct. 13, 18.

GAGE HEIGHT (FEET ABOVE DATUM), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.92	3.10	3.09	3.33	3.59	4.43	5.09	5.08	4.55	4.89	4.65	4.87
2	2.94	3.08	3.09	3.37	3.68	4.46	5.05	5.05	4.55	4.86	4.60	4.87
3	2.95	3.07	3.14	3.34	3.76	4.49	4.99	5.04	4.77	4.89	4.56	4.87
4	2.93	3.08	3.07	3.35	3.73	4.49	4.99	5.03	4.86	5.10	4.56	4.85
5	2.91	3.12	3.06	3.34	3.73	4.55	5.02	5.00	5.09	5.12	4.54	4.84
6	2.92	3.09	3.06	3.35	3.74	4.60	5.01	4.97	5.23	5.13	4.51	4.79
7	2.90	3.09	3.05	3.38	3.77	4.61	4.97	4.98	5.24	5.16	4.50	4.76
8	2.88	3.09	3.06	3.40	3.82	4.59	4.99	4.97	5.17	5.14	4.48	4.84
9	2.88	3.08	3.06	3.40	3.82	4.60	5.04	4.97	5.15	5.11	4.50	4.96
10	2.88	3.12	3.14	3.42	3.81	4.62	5.05	4.97	5.12	5.08	4.48	4.95
11	2.88	3.10	3.18	3.43	3.91	4.64	5.09	4.96	5.08	5.09	4.44	4.97
12	2.88	3.07	3.17	3.43	3.94	4.65	5.12	4.95	5.07	5.08	4.53	4.98
13	2.85	3.02	3.17	3.43	3.96	4.65	5.11	4.91	5.05	5.08	4.51	4.98
14	2.83	3.02	3.18	3.42	3.97	4.68	5.06	4.89	5.04	5.07	4.47	4.98
15	2.83	3.02	3.16	3.41	3.99	4.69	5.00	4.91	5.07	5.03	4.43	4.97
16	2.83	3.02	3.17	3.41	4.03	4.76	4.95	4.89	5.16	5.02	4.38	4.98
17	2.83	2.99	3.19	3.43	4.05	4.74	5.00	4.86	5.20	5.03	4.36	4.98
18	2.83	3.07	3.18	3.43	4.07	4.70	5.02	4.81	5.21	5.02	4.33	4.97
19	2.94	3.04	3.19	3.42	4.10	4.75	5.00	4.76	5.20	5.01	4.37	4.95
20	3.00	3.02	3.17	3.43	4.17	4.79	5.04	4.78	5.19	4.98	4.47	4.92
21	2.98	3.06	3.17	3.48	4.25	4.77	5.02	4.79	5.17	4.94	4.47	4.91
22	2.96	3.08	3.15	3.53	4.27	4.75	5.02	4.80	5.15	4.92	4.50	4.90
23	2.95	3.07	3.21	3.54	4.29	4.85	5.05	4.77	5.12	4.92	4.64	4.86
24	2.94	3.07	3.22	3.55	4.35	4.91	5.12	4.72	5.08	4.90	4.69	4.82
25	3.12	3.12	3.27	3.56	4.39	4.92	5.05	4.68	5.08	4.83	4.72	4.78
26	3.13	3.11	3.22	3.56	4.40	4.93	5.04	4.64	5.08	4.87	4.77	4.76
27	3.07	3.08	3.22	3.58	4.40	4.99	5.03	4.58	5.02	4.88	4.79	4.74
28	3.07	3.12	3.23	3.59	4.42	4.99	5.03	4.55	4.97	4.85	4.82	4.72
29	3.07	3.12	3.30	3.63	---	5.00	5.06	4.64	4.94	4.80	4.85	4.67
30	3.09	3.10	3.32	3.62	---	5.02	5.05	4.63	4.92	4.73	4.86	4.65
31	3.09	---	3.32	3.61	---	5.07	---	4.62	---	4.68	4.86	---
TOTAL	91.28	92.22	98.21	107.17	112.41	146.69	151.06	150.20	151.53	154.21	141.64	146.09
MEAN	2.94	3.07	3.17	3.46	4.01	4.73	5.04	4.85	5.05	4.97	4.57	4.87
MAX	3.13	3.12	3.32	3.63	4.42	5.07	5.12	5.08	5.24	5.16	4.86	4.98
MIN	2.83	2.99	3.05	3.33	3.59	4.43	4.95	4.55	4.55	4.68	4.33	4.65

CAL YR 1980 TOTAL 1484.99 MEAN 4.06 MAX 5.16 MIN 2.81
WTR YR 1981 TOTAL 1542.71 MEAN 4.23 MAX 5.24 MIN 2.83

02043750 CROSS CANAL DITCH NEAR HOLLY GROVE, NC

LOCATION.--Lat 36°30'35", long 76°33'10", Gate County, Hydrologic Unit 03010205, on right bank 300 ft (91.4 m) downstream from Rt. 1332 and 1.0 mi (1.6 km) west of Holly Grove (Rt. 32).

DRAINAGE AREA.--22.7 mi² (58.8 km²).

PERIOD OF RECORD.--October 1978 to September 1981 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 15.00 ft (4.572 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Several observations of water temperature were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 179 ft³/s (5.07 m³/s) Feb. 26, 1979, gage height, 9.46 ft (2.883 m); no flow at times each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 55 ft³/s (1.56 m³/s) June 8, gage height, 6.56 ft (1.999 m); no flow many days October to December and August.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	1.4	.96	12	12	5.3	1.2	.33	.21	.99
2	.00	.00	.00	1.3	1.0	11	12	4.7	1.1	.30	.12	.93
3	.00	.00	.00	1.2	1.1	9.8	11	4.2	1.1	1.1	.00	.85
4	.00	.00	.00	1.2	1.4	9.0	10	3.7	1.4	10	.00	.81
5	.00	.00	.00	1.1	1.5	9.1	9.8	3.2	10	8.5	.00	.81
6	.00	.00	.00	1.1	1.5	9.0	12	2.8	13	6.9	.00	.77
7	.00	.00	.00	1.1	2.2	8.6	11	3.0	44	4.3	.00	1.1
8	.00	.00	.00	.90	2.3	8.1	10	3.0	52	2.6	.10	1.4
9	.00	.00	.00	.74	2.6	7.9	9.5	2.7	45	1.8	.26	1.6
10	.00	.00	.00	.60	3.9	7.7	9.1	2.5	36	1.4	.17	1.2
11	.00	.00	.00	.46	4.7	7.1	8.8	2.8	23	1.1	.32	.97
12	.00	.00	.04	.38	7.1	6.8	8.4	2.9	13	.87	.51	.89
13	.00	.00	.20	.28	9.3	6.5	8.1	2.5	8.5	.75	.41	.83
14	.00	.00	1.3	.20	9.7	6.3	7.5	2.2	6.0	.68	.41	.82
15	.00	.00	1.4	.15	9.8	5.9	7.1	2.0	4.2	.64	.32	.77
16	.00	.00	1.2	.12	9.9	5.9	6.4	1.8	2.8	.57	.10	.80
17	.00	.00	1.1	.09	10	6.4	5.8	1.7	2.0	.59	.00	.83
18	.00	.00	1.0	.08	11	6.3	5.3	1.5	1.6	.55	.00	.82
19	.00	.00	.87	.08	11	6.2	5.0	1.5	1.3	.50	.38	.80
20	.00	.00	.78	.13	12	5.9	6.0	2.6	1.1	.43	.96	.77
21	.00	.00	.70	.24	14	5.7	6.3	3.2	.93	.53	.74	.72
22	.00	.00	.68	.37	14	5.5	5.7	2.7	.81	.61	1.4	.72
23	.00	.00	.68	.39	15	9.5	5.2	2.2	.72	.49	2.3	.69
24	.00	.00	.76	.39	14	13	6.6	1.8	.70	.42	2.1	.64
25	.62	.00	.86	.43	15	15	6.9	1.5	.63	.38	3.2	.60
26	.01	.00	.92	.48	15	13	6.4	1.3	.61	.52	2.9	.61
27	.00	.00	.98	.48	14	14	5.9	1.2	.57	.52	2.2	.55
28	.00	.00	1.1	.52	13	14	5.4	1.3	.51	.37	1.8	.46
29	.00	.00	1.2	.89	---	12	5.2	1.4	.46	.34	1.5	.31
30	.00	.00	1.3	.92	---	12	4.9	1.3	.40	.30	1.3	.17
31	.00	---	1.3	.96	---	12	---	1.2	---	.24	1.1	---
TOTAL	.63	.00	18.37	18.68	226.96	281.2	233.3	75.7	274.64	48.63	24.81	24.23
MEAN	.020	.000	.59	.60	8.11	9.07	7.78	2.44	9.15	1.57	.80	.81
MAX	.62	.00	1.4	1.4	15	15	12	5.3	52	10	3.2	1.6
MIN	.00	.00	.00	.08	.96	5.5	4.9	1.2	.40	.24	.00	.17
CFSM	.001	.000	.03	.03	.34	.38	.32	.10	.38	.07	.03	.03
IN.	.00	.00	.03	.03	.35	.44	.36	.12	.43	.08	.04	.04

CAL YR 1980 TOTAL 6235.38 MEAN 17.0 MAX 137 MIN .00 CFSM .71 IN 9.66
WTR YR 1981 TOTAL 1227.15 MEAN 3.36 MAX 52 MIN .00 CFSM .14 IN 1.90

02044000 NOTTOWAY RIVER NEAR BURKEVILLE, VA

LOCATION.--Lat 37°04'40", long 78°11'50", Nottoway County, Hydrologic Unit 03010201, on left bank at downstream side of bridge on State Highway 723, 4.0 mi (6.4 km) upstream from Modest Creek, 5.6 mi (9.0 km) north of Victoria, and 7.5 mi (12.1 km) south of Burkeville.

DRAINAGE AREA.--38.7 mi² (100.2 km²).

PERIOD OF RECORD.--September 1946 to current year.

REVISED RECORDS.--WSP 1383: 1946-47, 1949. WSP 1433: 1948. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 354.58 ft (108.076 m) National Geodetic Vertical Datum of 1929. Prior to July 4, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of no gage-height record, Jan. 8 to Feb. 19, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 38.8 ft³/s (1.099 m³/s), 13.62 in/yr (346 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft³/s (379 m³/s) Oct. 23, 1971, gage height, 22.33 ft (6.806 m), from rating curve extended above 3,200 ft³/s (91 m³/s) on basis of slope-area measurement of peak flow; no flow Aug. 29 to Oct. 14, 1954, Sept. 3-5, 12-15, 1963.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1930, 27.4 ft (8.35 m) in August 1940, from Corps of Engineers floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,000 ft³/s (85.0 m³/s) at 0800 hours June 7, gage height, 16.90 ft (5.151 m), no other peak above base of 1,200 ft³/s (34 m³/s); minimum, 0.66 ft³/s (0.019 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	6.1	8.5	6.4	6.4	10	24	6.0	42	2.1	2.5	1.2
2	2.9	5.3	7.8	6.2	9.0	9.8	19	6.2	22	2.8	2.0	1.3
3	2.9	4.7	7.4	6.2	22	8.8	15	4.9	55	4.0	1.8	1.2
4	3.6	5.1	6.8	6.0	15	8.1	12	4.5	18	141	3.0	1.1
5	3.8	9.1	6.3	5.7	12	13	13	4.3	15	49	3.8	1.2
6	3.6	8.5	6.5	5.5	10	16	52	4.4	36	164	2.7	1.4
7	3.3	6.4	6.5	5.8	9.0	11	28	6.5	1450	28	2.4	3.7
8	3.0	5.9	6.3	6.0	9.5	9.4	19	7.4	78	12	12	8.0
9	2.5	5.7	6.7	5.8	13	8.8	18	5.3	36	8.0	7.2	4.4
10	2.0	6.0	7.2	5.6	11	8.1	32	5.5	21	6.3	4.2	3.3
11	2.0	6.6	7.4	5.0	28	7.8	22	19	14	4.8	3.2	2.5
12	1.8	6.7	6.7	5.0	90	7.4	18	27	9.8	4.1	2.6	1.9
13	1.9	6.9	6.3	4.6	25	7.2	19	11	8.5	3.7	2.3	1.7
14	1.9	6.9	6.2	4.7	15	7.2	20	7.0	7.8	3.4	2.1	1.5
15	2.0	7.2	6.0	4.7	12	6.8	20	5.3	6.5	3.0	2.0	1.4
16	2.0	7.0	6.0	5.0	12	7.0	17	4.7	5.3	2.8	1.8	73
17	2.0	7.3	6.2	5.2	11	10	14	4.6	4.7	2.9	1.7	21
18	2.0	22	6.0	5.4	10	9.6	15	4.1	4.5	2.9	1.5	4.7
19	23	15	5.8	5.6	15	8.5	13	36	4.4	2.8	1.5	3.6
20	12	9.7	5.7	5.9	55	7.8	15	66	4.2	2.5	1.6	2.8
21	4.7	8.2	5.2	6.8	42	7.4	23	30	3.9	2.3	1.8	2.1
22	3.2	7.3	4.9	9.5	27	7.0	15	15	3.6	2.1	1.7	1.7
23	3.0	6.9	4.8	14	22	14	12	9.4	3.3	1.8	1.6	1.4
24	3.0	18	4.7	9.6	22	48	15	6.7	2.9	1.8	1.6	1.2
25	9.1	51	4.6	8.5	17	25	15	4.9	2.7	15	1.5	1.0
26	16	17	4.7	7.8	14	17	11	4.3	2.6	6.3	1.3	.95
27	8.5	11	5.5	7.6	12	14	9.6	3.9	2.5	4.0	1.2	.88
28	5.6	16	6.0	7.2	11	12	8.8	4.7	2.3	3.1	1.0	.80
29	4.6	15	7.0	6.8	---	11	7.4	6.3	2.1	5.3	.95	.73
30	5.1	11	7.0	6.2	---	15	6.7	5.2	2.0	5.2	.99	.69
31	6.0	---	6.6	5.8	---	47	---	4.3	---	3.3	1.1	---
TOTAL	149.5	319.5	193.3	200.1	556.9	399.7	528.5	334.4	1870.6	500.3	76.64	152.35
MEAN	4.82	10.7	6.24	6.45	19.9	12.9	17.6	10.8	62.4	16.1	2.47	5.08
MAX	23	51	8.5	14	90	48	52	66	1450	164	12	73
MIN	1.8	4.7	4.6	4.6	6.4	6.8	6.7	3.9	2.0	1.8	.95	.69
CFSM	.13	.28	.16	.17	.51	.33	.46	.28	1.61	.42	.06	.13
IN.	.14	.31	.19	.19	.54	.38	.51	.32	1.80	.48	.07	.15

CAL YR 1980 TOTAL 13607.10 MEAN 37.2 MAX 871 MIN 1.1 CFSM .96 IN 13.08
WTR YR 1981 TOTAL 5281.79 MEAN 14.5 MAX 1450 MIN .69 CFSM .38 IN 5.08

02044500 NOTTOWAY RIVER NEAR RAWLINGS, VA

LOCATION.--Lat 36°59'00", long 77°48'00", Brunswick County, Hydrologic Unit 03010201, on right bank at downstream side of bridge on State Highway 612 at Harpers Bridge, 0.1 mi (0.2 km) upstream from Beaver Pond Creek, and 2.6 mi (4.2 km) northwest of Rawlings.

DRAINAGE AREA.--309 mi² (800 km²).

PERIOD OF RECORD.--October 1950 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 184.88 ft (56.351 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--31 years, 312 ft³/s (8.836 m³/s), 13.71 in/yr (348 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,900 ft³/s (847 m³/s) Oct. 6, 1972, gage height, 23.25 ft (7.087 m), from rating curve extended above 16,000 ft³/s (450 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.40 ft³/s (0.11 m³/s) Oct. 14, 15, 1954; minimum gage height, 1.83 ft (0.558 m) Oct. 15, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 20.8 ft (6.34 m), discharge, about 19,000 ft³/s (540 m³/s), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,270 ft³/s (149 m³/s) at 0900 hours June 8, gage height, 11.16 ft (3.402 m), no other peak above base of 2,500 ft³/s (71 m³/s); minimum, 18 ft³/s (0.51 m³/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	119	130	133	92	128	212	95	128	58	55	41
2	68	108	121	126	117	124	182	96	676	72	48	42
3	73	95	115	119	185	120	151	86	313	122	49	46
4	90	95	106	117	210	116	131	82	237	314	164	43
5	103	138	104	101	167	125	126	79	200	823	160	42
6	101	144	103	103	144	140	200	77	216	405	94	41
7	94	126	103	103	130	140	269	82	1840	382	84	44
8	86	115	104	101	130	126	213	89	4680	218	79	61
9	79	108	104	100	140	116	170	86	1620	146	79	79
10	72	104	110	98	155	112	161	86	371	114	83	72
11	69	97	123	94	185	108	166	208	242	97	72	58
12	66	90	119	90	428	104	160	583	184	86	63	48
13	61	87	112	88	424	103	158	346	155	79	61	42
14	56	87	110	86	265	103	157	195	137	74	55	37
15	56	95	108	87	217	98	162	139	123	69	49	36
16	56	90	108	88	194	101	151	117	111	65	46	59
17	56	90	108	90	179	117	142	102	101	67	41	234
18	56	117	106	94	170	119	138	93	107	66	34	192
19	82	150	108	97	170	114	129	99	171	65	35	128
20	147	152	104	103	244	108	129	155	131	61	51	84
21	141	128	101	110	355	102	141	263	105	60	52	63
22	104	112	94	136	288	98	144	216	92	57	51	49
23	89	104	94	147	223	118	132	155	85	52	59	40
24	95	110	95	138	194	167	154	122	78	52	55	33
25	115	217	100	130	176	215	146	104	73	77	49	30
26	191	281	103	123	155	178	129	93	71	130	44	28
27	188	194	104	121	141	147	118	87	71	101	41	26
28	144	170	110	121	133	130	109	111	68	84	37	22
29	115	158	126	115	---	122	105	147	62	71	36	21
30	106	144	138	108	---	124	97	129	57	66	34	18
31	112	---	141	101	---	170	---	107	---	61	40	---
TOTAL	2923	3825	3412	3368	5611	3893	4582	4429	12505	4194	1900	1759
MEAN	94.3	128	110	109	200	126	153	143	417	135	61.3	58.6
MAX	191	281	141	147	428	215	269	583	4680	823	164	234
MIN	52	87	94	86	92	98	97	77	57	52	34	18
CFSM	.31	.41	.36	.35	.65	.41	.50	.46	1.35	.44	.20	.19
IN.	.35	.46	.41	.41	.68	.47	.55	.53	1.51	.50	.23	.21

CAL YR 1980 TOTAL 118199 MEAN 323 MAX 2900 MIN 28 CFSM 1.05 IN 14.23
WTR YR 1981 TOTAL 52401 MEAN 144 MAX 4680 MIN 18 CFSM .47 IN 6.31

02045500 NOTTOWAY RIVER NEAR STONY CREEK, VA

LOCATION.--Lat 36°54'00", long 77°24'00", Sussex County, Hydrologic Unit 03010201, on left bank 15 ft (5 m) downstream from upstream bridge on U.S. Highway 301, 1.8 mi (2.9 km) upstream from Island Swamp. 3.3 mi (5.3 km) south of town of Stony Creek, and 4.4 mi (7.1 km) upstream from Stony Creek.

DRAINAGE AREA.--579 mi^2 (1,500 km^2).

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 802: 1935(M). WSP 972: 1931(M), 1932, 1934-35, 1939. WSP 2104: Drainage area. WDR VA-74-1: 1972.

GAGE.--Water-stage recorder. Datum of gage is 58.42 ft (17.806 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 11, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good. Diurnal fluctuation at low flow caused by Baskerville Mill, 33 mi (53 km) upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--52 years, 561 ft^3/s (15.89 m^3/s), 13.16 in/yr (334 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,200 ft^3/s (714 m^3/s) Aug. 17, 1940, gage height, 23.66 ft (7.212 m), from rating curve extended above 13,000 ft^3/s (370 m^3/s); minimum, 3.4 ft^3/s (0.096 m^3/s) Aug. 15, 16, 1977; minimum gage height, 0.62 ft (0.189 m) Sept. 2, 5, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,960 ft^3/s (140 m^3/s) at 0130 hours June 10, gage height, 15.09 ft (4.599 m), no other peak above base of 3,500 ft^3/s (99 m^3/s); minimum, 20 ft^3/s (0.57 m^3/s) Oct. 1, 16, 17, 19; minimum gage height, 2.29 ft (0.698 m) Sept. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	109	176	155	120	196	291	143	160	51	53	26
2	31	111	158	146	123	187	326	132	287	53	47	32
3	37	108	144	135	163	178	280	130	756	64	43	29
4	56	94	136	130	250	171	232	115	373	122	41	26
5	71	95	124	110	254	183	204	107	611	906	109	24
6	91	141	118	109	208	211	282	101	536	1150	191	24
7	90	159	116	114	176	224	435	100	2480	623	145	22
8	84	140	115	127	174	211	435	100	4380	554	119	22
9	72	126	115	141	181	189	333	111	4560	317	102	22
10	63	116	126	136	193	171	276	117	3300	202	91	33
11	55	107	145	122	226	163	258	133	570	148	97	55
12	51	99	163	117	512	156	254	666	351	118	84	46
13	43	91	153	106	702	151	249	837	259	99	69	36
14	39	87	141	99	529	147	251	479	209	88	61	29
15	35	85	132	95	346	143	246	283	176	84	56	26
16	31	93	126	102	279	141	248	209	152	70	50	32
17	30	93	124	106	243	154	226	167	132	64	43	29
18	31	113	123	114	224	179	213	133	120	61	37	167
19	45	132	121	117	212	187	207	122	179	61	38	211
20	52	172	118	117	241	177	200	152	234	59	41	162
21	122	178	115	124	469	164	205	337	175	56	39	113
22	139	149	105	141	556	153	217	429	134	52	51	83
23	101	128	105	177	448	175	211	311	110	49	56	64
24	74	124	133	198	358	272	267	213	93	45	55	50
25	107	159	147	190	304	329	379	160	83	45	55	40
26	117	312	122	160	266	342	283	129	73	104	48	34
27	202	356	124	148	234	278	229	109	66	168	42	32
28	201	255	116	146	210	231	193	143	61	127	36	30
29	153	219	121	144	---	201	171	313	58	98	32	27
30	114	196	136	139	---	191	155	247	53	76	29	24
31	105	---	155	131	---	222	---	192	---	61	28	---
TOTAL	2474	4347	4053	4096	8201	6077	7756	6920	20731	5775	1988	1550
MEAN	79.8	145	131	132	293	196	259	223	691	186	64.1	51.7
MAX	202	356	176	198	702	342	435	837	4560	1150	191	211
MIN	30	85	105	95	120	141	155	100	53	45	28	22
CFSM	.14	.25	.23	.23	.51	.34	.45	.39	1.19	.32	.11	.09
IN.	.16	.28	.26	.26	.53	.39	.50	.44	1.33	.37	.13	.10

CAL YR 1980 TOTAL 208878 MEAN 571 MAX 4760 MIN 14 CFSM .99 IN 13.42
WTR YR 1981 TOTAL 73968 MEAN 203 MAX 4560 MIN 22 CFSM .35 IN 4.75

02046000 STONY CREEK NEAR DINWIDDIE, VA

LOCATION.--Lat 37°04'01", long 77°36'10", Dinwiddie County, Hydrologic Unit 03010201, on right bank at upstream side of upstream bridge on U.S. Highway 1, 1.2 mi (1.9 km) southwest of Dinwiddie, 1.7 mi (2.7 km) downstream from Chamberlains Bed Creek, and 5.7 mi (9.2 km) downstream from confluence of White Oak and Butterwood Creeks.

DRAINAGE AREA.--112 mi^2 (290 km^2).

PERIOD OF RECORD.--September 1946 to current year. Published as "at Dinwiddie" September 1946 to September 1947 and October 1949 to September 1950.

REVISED RECORDS.--WSP 1303: 1947(M). WSP 1433: 1951(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 129.94 ft (39.606 m) National Geodetic Vertical Datum of 1929. Prior to June 12, 1957, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 112 ft^3/s (3.172 m^3/s), 13.58 in/yr (345 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,400 ft^3/s (323 m^3/s) Oct. 6, 1972, gage height, 20.84 ft (6.352 m), from rating curve extended above 5,800 ft^3/s (160 m^3/s) on basis of contracted-opening measurement of peak flow; no flow for part of Oct. 13, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,970 ft^3/s (84.1 m^3/s) at 0730 hours June 7, gage height, 11.63 ft (3.545 m), no other peak above base of 1,200 ft^3/s (34 m^3/s); minimum daily, 0.30 ft^3/s (0.008 m^3/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.30	24	28	26	19	27	46	18	19	2.4	6.3	1.0
2	.50	22	25	23	27	25	40	17	23	2.5	4.0	1.2
3	.90	20	21	21	44	23	34	15	18	2.8	3.3	1.1
4	2.2	20	19	18	44	21	29	13	18	30	6.9	1.1
5	1.9	24	17	15	33	27	30	11	126	158	25	1.0
6	2.2	23	17	12	26	33	99	10	86	108	29	1.2
7	1.9	21	17	11	23	33	93	15	2230	58	24	1.3
8	1.1	18	17	11	24	29	59	17	1150	36	22	1.6
9	1.1	16	17	10	26	26	44	15	403	26	33	1.2
10	1.1	13	19	9.8	28	24	41	16	144	20	26	1.1
11	2.8	11	24	9.6	54	22	37	141	87	15	21	1.0
12	4.3	10	23	9.2	116	21	34	249	62	11	18	.94
13	2.5	9.0	22	9.0	74	20	39	132	49	8.2	14	.80
14	1.6	8.6	21	9.0	51	20	44	65	40	6.5	10	.80
15	1.2	11	20	9.5	42	18	41	41	33	4.9	8.2	1.7
16	1.2	11	19	10	36	19	35	39	28	3.8	6.9	8.7
17	1.2	9.8	20	12	33	24	33	27	24	4.3	4.9	11
18	1.2	14	19	14	30	25	31	23	21	3.4	3.4	32
19	7.7	21	18	15	29	25	28	25	20	2.3	3.5	41
20	21	22	17	16	43	23	28	50	18	1.7	4.1	35
21	20	22	16	20	82	22	36	70	15	1.3	3.8	24
22	10	20	14	32	77	20	34	51	13	1.1	5.2	16
23	4.3	18	14	37	58	33	31	36	11	.98	5.3	10
24	3.1	20	14	33	49	53	42	27	9.0	1.4	4.6	6.2
25	21	47	15	30	41	50	48	21	7.7	3.2	4.0	4.2
26	24	53	16	26	35	40	37	16	6.4	10	3.5	2.7
27	27	44	16	26	31	33	30	13	5.1	38	2.8	2.5
28	26	40	17	25	28	29	26	28	4.1	26	2.3	1.3
29	24	36	21	23	---	28	22	36	3.4	19	1.9	.91
30	23	32	25	21	---	29	19	27	3.0	14	1.5	.61
31	24	---	28	20	---	37	---	22	---	9.4	1.2	---
TOTAL	264.30	660.4	596	563.1	1203	859	1190	1286	4676.7	629.18	309.6	213.16
MEAN	8.53	22.0	19.2	18.2	43.0	27.7	39.7	41.5	156	20.3	9.99	7.11
MAX	27	53	28	37	116	53	99	249	2230	158	33	41
MIN	.30	8.6	14	9.0	19	18	19	10	3.0	.98	1.2	.61
CFSM	.08	.20	.17	.16	.38	.25	.35	.37	1.39	.18	.09	.06
IN.	.09	.22	.20	.19	.40	.29	.40	.43	1.55	.21	.10	.07

CAL YR 1980 TOTAL 41657.75 MEAN 114 MAX 1850 MIN .21 CFSM 1.02 IN 13.84
WTR YR 1981 TOTAL 12450.44 MEAN 34.1 MAX 2230 MIN .30 CFSM .30 IN 4.14

02047000 NOTTOWAY RIVER NEAR SEBRELL, VA
(National stream-quality accounting network station)

LOCATION.--Lat 36°46'13", long 77°09'59", Southampton County, Hydrologic Unit 03010201, on right bank 1,000 ft (305 m) upstream from bridge on State Highway 653, 1 mi (2 km) downstream from Three Creek, 2.5 mi (4.0 km) southwest of Sebrell, and 5.5 mi (8.8 km) upstream from Assamoosick Swamp.

DRAINAGE AREA.--1,421 mi^2 (3,680 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1942, 1944, 1948-49. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 5.94 ft (1.811 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 23, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--40 years, 1,354 ft^3/s (38.35 m^3/s), 12.94 in/yr (329 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft^3/s (736 m^3/s) July 19, 1975, gage height, 24.43 ft (7.446 m); minimum observed, 12 ft^3/s (0.34 m^3/s) Oct. 23, 1941, Sept. 29, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 29.7 ft (9.05 m), from floodmarks, discharge, 48,000 ft^3/s (1,360 m^3/s), from rating curve extended above 25,000 ft^3/s (710 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,620 ft^3/s (187 m^3/s) June 12, gage height, 16.34 ft (4.980 m); minimum, 27 ft^3/s (0.76 m^3/s) Oct. 1; minimum gage height, 3.00 ft (0.914 m) Sept. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	151	277	210	209	427	475	324	1050	89	77	48
2	34	134	253	231	203	385	557	279	790	87	60	44
3	38	132	232	232	201	353	616	244	616	86	50	41
4	40	135	208	219	228	330	579	220	878	106	47	43
5	40	132	190	200	308	337	492	202	863	132	44	44
6	55	121	180	184	369	371	457	181	1040	645	43	42
7	76	123	166	185	318	411	500	173	1800	1360	145	41
8	101	174	156	178	309	446	727	163	2860	1100	188	46
9	104	189	152	165	313	438	783	163	3610	830	170	44
10	98	170	160	182	316	400	681	191	4750	572	142	39
11	86	151	166	199	356	360	574	207	6200	361	132	36
12	75	137	180	198	451	334	519	223	6520	253	143	37
13	66	127	199	185	697	315	503	671	5360	191	133	64
14	55	118	213	175	986	295	479	1200	3040	154	115	67
15	49	109	203	165	988	276	466	1040	1220	129	98	58
16	45	102	193	155	770	268	476	732	606	112	87	76
17	41	99	183	149	633	268	459	491	443	105	79	65
18	36	120	174	149	552	277	424	358	478	92	72	60
19	53	125	172	164	492	308	394	290	424	83	65	61
20	49	136	170	180	474	338	378	257	493	74	66	238
21	55	163	166	183	501	331	366	289	503	72	69	259
22	61	204	161	181	670	314	359	492	407	75	74	219
23	137	205	159	195	872	324	368	678	306	67	88	171
24	147	185	154	227	851	373	419	587	238	58	94	133
25	134	178	161	256	723	491	491	425	195	53	92	107
26	116	181	183	269	626	631	635	313	166	50	83	87
27	137	244	192	272	546	652	620	242	142	47	79	74
28	167	413	177	254	483	596	524	237	121	124	70	63
29	238	383	185	235	---	515	443	566	106	154	62	54
30	220	310	181	229	---	460	378	1140	95	130	56	49
31	182	---	191	220	---	449	---	1340	---	102	49	---
TOTAL	2763	5151	5737	6226	14445	12073	15142	13918	45320	7493	2772	2410
MEAN	89.1	172	185	201	516	389	505	449	1511	242	89.4	80.3
MAX	238	413	277	272	988	652	783	1340	6520	1360	188	259
MIN	28	99	152	149	201	268	359	163	95	47	43	36
CFSM	.06	.12	.13	.14	.36	.27	.36	.32	1.06	.17	.06	.06
IN.	.07	.13	.15	.16	.38	.32	.40	.36	1.19	.20	.07	.06

CAL YR 1980 TOTAL 474307 MEAN 1296 MAX 9430 MIN 20 CFSM .91 IN 12.42
WTR YR 1981 TOTAL 133450 MEAN 366 MAX 6520 MIN 28 CFSM .26 IN 3.49

02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947, 1978 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1946 to September 1947.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)
NOV 05...	0800	135	90	7.3	10.5	.75	10.3	K5	26	22	1
JAN 14...	1000	195	115	7.3	.0	1.9	16.2	K5	10	30	8
MAR 03...	1330	352	103	6.7	10.5	.80	10.4	15	12	27	13
MAY 05...	1230	203	93	7.1	17.0	1.8	8.7	11	82	25	1
JUL 08...	1300	1080	70	6.7	26.0	20	4.9	80	300	19	4
SEP 08...	1230	45	95	7.3	23.0	2.0	7.1	120	160	29	0

K Result based on colony count outside optimal range.

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
NOV 05...	5.3	2.1	7.0	2.5	21	8.5	6.2	<.1	13	66	58
JAN 14...	7.8	2.6	7.7	2.1	22	15	6.8	.1	19	88	75
MAR 03...	7.0	2.3	7.4	1.8	14	19	6.5	<.1	--	72	--
MAY 05...	6.6	2.1	6.7	1.9	24	6.7	5.9	.1	14	72	60
JUL 08...	4.8	1.6	5.3	2.0	15	6.2	3.8	<.1	15	67	49
SEP 08...	7.3	2.7	5.8	1.8	30	4.9	4.9	.1	12	71	59

< Actual value is known to be less than the value shown.

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
NOV 05...	.03	.03	.020	<.010	.35	.21	.38	.24	.020	.010	<1
JAN 14...	.05	.05	<.010	<.010	.14	.10	.19	.15	.020	.010	--
MAR 03...	.10	.10	.030	.030	.42	.31	.52	.41	.020	.020	--
MAY 05...	.10	.11	.070	.070	.53	.47	.63	.58	.050	.050	<1
JUL 08...	.15	.14	.020	.010	.40	.38	.55	.52	.020	.020	2
SEP 08...	.13	.14	.040	.030	.31	.20	.44	.34	.020	.010	2

< Actual value is known to be less than the value shown.

02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)
NOV 05...	<1	100	30	<1	<1	<10	<10	1	<1	8	<1
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 03...	--	--	--	--	--	--	--	--	--	--	--
MAY 05...	<1	100	40	2	2	20	10	2	<1	2	<1
JUL 08...	1	100	40	1	<1	20	20	2	1	1	<1
SEP 08...	1	100	<50	<1	<1	<10	<10	<1	<1	5	4

< Actual value is known to be less than the value shown.

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)
NOV 05...	370	220	<1	<1	50	30	.2	<.1	5	<1	<1
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 03...	--	--	--	--	--	--	--	--	--	--	--
MAY 05...	1200	500	3	<1	210	180	<.1	<.1	3	1	<1
JUL 08...	1800	910	9	1	150	40	.5	.2	1	1	<1
SEP 08...	440	230	6	4	150	130	<.1	<.1	4	3	<1

< Actual value is known to be less than the value shown.

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 05...	<1	<1	<1	10	<4	--	6.6	.2	520	1	100
JAN 14...	--	--	--	--	--	4.4	--	--	--	9	54
MAR 03...	--	--	--	--	--	6.7	--	--	500	10	100
MAY 05...	<1	<1	<1	20	10	--	7.6	.6	26	13	100
JUL 08...	<1	<1	<1	30	<4	--	7.0	.6	1600	20	95
SEP 08...	<1	<1	<1	20	<4	--	7.7	--	660	6	100

< Actual value is known to be less than the value shown.

02047000 NOTTOWAY RIVER NEAR SEBRELL, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE TIME	NOV 5,80 0800	MAR 3,81 1330	MAY 6,81 1230	JUL 8,81 1300	SEP 8,81 1230
TOTAL CELLS/ML	520	500	26	1600	665
DIVERSITY: DIVISION	0.0	1.0	0.0	1.0	1.6
.CLASS	0.0	1.0	0.0	1.0	1.6
..ORDER	0.0	1.4	0.0	1.1	2.1
...FAMILY	0.0	1.5	0.0	1.2	2.7
....GENUS	0.0	1.5	0.0	2.1	2.8

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	28	4
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	13	3	--	-	--	-	14	2
....OOCYSTIS	--	-	--	-	--	-	--	-	42	6
....TETRAEDRON	--	-	--	-	--	-	13	1	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	100	7	56	9
....SCENEDESMUS	--	-	--	-	--	-	52	3	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	13	3	--	-	--	-	42	6
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	--	-	--	-	--	-	14	2
....MELOSIRA	--	-	340#	67	--	-	90	6	110#	17
..PENNALES										
...FRAGILARIACEAE										
....SYNEDRA	--	-	39	8	--	-	26	2	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	--	-	14	2
...NAVICULACEAE										
....NAVICULA	--	-	13	3	26#	100	26	2	28	4
...NITZSCHIACEAE										
....NITZSCHIA	--	-	--	-	--	-	26	2	56	9
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	90#	18	--	-	--	-	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	630#	40	--	-
....APHANIZOMENON	--	-	--	-	--	-	620#	39	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	520#	100	--	-	--	-	--	-	250#	38

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%

* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02047500 BLACKWATER RIVER NEAR DENDRON, VA

LOCATION.--Lat 37°01'30", long 76°52'30", Surry County, Hydrologic Unit 03010202, on left bank 10 ft (3 m) upstream from Walls Bridge on State Highway 617, 1.2 mi (1.9 km) downstream from Cypress Swamp, and 3.5 mi (5.6 km) southeast of Dendron.

DRAINAGE AREA.--294 mi^2 (761 km^2).

PERIOD OF RECORD.--October 1941 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 30.99 ft (9.446 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Aug. 13, 1980, at site 25 ft (8 m) upstream at same datum.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Dec. 17 to Feb. 9 and June 7-11, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--40 years, 312 ft^3/s (8.836 m^3/s), 14.41 in/yr (366 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,070 ft^3/s (144 m^3/s) June 5, 1963, gage height, 9.1 ft (2.77 m), from high-water mark in well; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 13.1 ft (3.99 m), from Corps of Engineers floodmarks, discharge, 10,000 ft^3/s (283 m^3/s), from rating curve extended above 4,800 ft^3/s (140 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,370 ft^3/s (38.8 m^3/s) June 9, gage height, 5.42 ft (1.652 m), from high-water mark in well; no flow Oct. 1 to Dec. 16, June 30 to July 3, 19-25, Aug. 3-10, Sept. 2-8, 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	20	28	86	86	61	232	.00	.80	.01
2	.00	.00	.00	22	30	82	78	53	270	.00	.03	.00
3	.00	.00	.00	23	37	77	74	46	248	.00	.00	.00
4	.00	.00	.00	22	42	72	89	39	186	3.5	.00	.00
5	.00	.00	.00	20	40	86	94	35	156	12	.00	.00
6	.00	.00	.00	18	45	95	95	32	123	30	.00	.00
7	.00	.00	.00	17	52	95	95	37	520	80	.00	.00
8	.00	.00	.00	16	60	95	95	36	800	111	.00	.00
9	.00	.00	.00	15	68	92	95	31	1370	88	.00	8.5
10	.00	.00	.00	14	76	86	95	35	1300	56	.00	12
11	.00	.00	.00	14	91	82	94	40	1150	35	.70	9.8
12	.00	.00	.00	14	115	77	92	36	868	18	37	5.8
13	.00	.00	.00	14	131	72	91	33	633	11	43	3.2
14	.00	.00	.00	15	144	68	86	31	485	7.0	91	1.0
15	.00	.00	.00	15	142	64	86	36	349	3.5	74	.00
16	.00	.00	.00	16	137	64	83	66	251	1.4	42	40
17	.00	.00	1.0	17	131	70	81	59	176	1.2	24	51
18	.00	.00	4.5	18	119	69	81	47	123	.20	12	37
19	.00	.00	4.0	18	113	71	77	47	89	.00	8.9	36
20	.00	.00	3.8	18	113	71	78	60	70	.00	15	36
21	.00	.00	3.9	21	117	68	82	70	64	.00	12	31
22	.00	.00	4.1	23	113	64	78	76	55	.00	12	25
23	.00	.00	4.3	26	110	80	85	76	42	.00	19	19
24	.00	.00	4.7	28	102	81	115	70	29	.00	13	14
25	.00	.00	5.3	30	99	83	106	60	20	.00	9.8	11
26	.00	.00	4.6	31	95	83	94	49	13	.06	7.0	8.5
27	.00	.00	5.1	31	92	81	88	39	7.4	12	4.7	5.1
28	.00	.00	6.0	30	89	81	81	61	2.5	13	1.9	3.2
29	.00	.00	7.0	30	---	89	75	86	.06	9.4	.80	1.6
30	.00	.00	9.0	29	---	91	68	113	.00	6.2	.30	.80
31	.00	---	15	28	---	91	---	165	---	3.2	.10	---
TOTAL	.00	.00	82.30	653	2531	2466	2617	1725	9631.96	501.66	429.03	359.51
MEAN	.000	.000	2.65	21.1	90.4	79.5	87.2	55.6	321	16.2	13.8	12.0
MAX	.00	.00	15	31	144	95	115	165	1370	111	91	51
MIN	.00	.00	.00	14	28	64	68	31	.00	.00	.00	.00
CFSM	.000	.000	.009	.07	.31	.27	.30	.19	1.09	.06	.05	.04
IN.	.00	.00	.01	.08	.32	.31	.33	.22	1.22	.06	.05	.05

CAL YR 1980 TOTAL 95426.18 MEAN 261 MAX 2190 MIN .00 CFSM .89 IN 12.07
WTR YR 1981 TOTAL 20996.46 MEAN 57.5 MAX 1370 MIN .00 CFSM .20 IN 2.66

02048000 BLACKWATER RIVER AT ZUNI, VA

LOCATION.--Lat 36°52'05", long 76°50'07", Isle of Wight County, Hydrologic Unit 03010202, on left bank at downstream side of bridge on U.S. Highway 460 at Zuni, 1.6 mi (2.6 km) downstream from Pope Swamp, and 4.2 mi (6.8 km) upstream from Antioch Swamp.

DRAINAGE AREA.--456 mi^2 (1,181 km^2).

PERIOD OF RECORD.--October 1942 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 8.56 ft (2.609 m) National Geodetic Vertical Datum of 1929. Prior to July 18, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good except those for period of doubtful gage-height record, Oct. 1 to Dec. 31, which are fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--39 years, 494 ft^3/s (13.99 m^3/s), 14.71 in/yr (374 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft^3/s (198 m^3/s) Mar. 21, 1975; maximum gage height, 17.51 ft (5.337 m) June 5, 1963; no flow Sept. 10-18, 1944, Sept. 28 to Oct. 31, 1954, part of each day Sept. 1, 2, 1976, and Sept. 23, 24, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 23.2 ft (7.07 m), discharge, 16,000 ft^3/s (453 m^3/s), from rating curve extended above 5,500 ft^3/s (160 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3, 50 ft^3/s (89.2 m^3/s) June 10, gage height, 11.26 ft (3.432 m); minimum, 0.02 ft^3/s (<0.001 m^3/s) Oct. 10, 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.09	.04	2.5	30	45	145	154	136	260	3.4	.74	3.6
2	.08	.04	2.6	35	49	138	157	116	231	2.0	.64	2.9
3	.07	.04	2.7	35	56	130	155	99	270	1.6	.55	2.1
4	.08	.04	2.8	36	62	123	151	83	342	3.2	.48	1.5
5	.07	.04	3.0	35	60	135	144	71	448	6.5	.41	1.3
6	.05	.04	3.1	34	60	163	158	66	534	73	.40	1.3
7	.04	.04	3.2	34	61	177	180	61	1510	119	.59	2.2
8	.04	.04	3.4	31	76	185	190	61	2660	84	.81	39
9	.04	.04	3.6	29	97	182	193	58	3010	73	.90	56
10	.03	.04	4.5	28	108	170	185	55	3110	102	.84	29
11	.03	.05	6.2	26	120	162	175	57	2770	94	6.8	16
12	.03	.04	5.8	24	162	152	166	58	2280	65	44	9.5
13	.03	.04	5.4	23	185	141	158	55	1800	41	27	6.5
14	.03	.04	6.0	24	197	131	152	49	1340	24	10	4.8
15	.03	.06	7.0	25	207	120	148	42	956	13	5.0	4.6
16	.03	.06	8.0	25	216	113	142	37	675	7.0	18	39
17	.03	.08	8.2	29	222	114	138	34	475	4.4	47	180
18	.03	.23	8.6	29	218	115	134	34	347	3.2	45	388
19	.04	.30	7.8	29	207	116	128	44	248	2.1	34	424
20	.04	.32	5.4	29	200	116	124	50	176	2.0	32	254
21	.04	.34	5.6	32	198	115	125	51	119	1.6	30	131
22	.04	.43	6.4	37	195	112	126	51	82	1.5	37	74
23	.04	.46	6.7	42	193	122	127	53	60	1.3	80	50
24	.04	.56	7.0	46	190	145	158	60	45	1.2	60	34
25	.06	.90	8.0	48	185	154	212	64	37	1.4	36	24
26	.04	1.0	7.0	51	176	158	257	63	30	1.8	25	17
27	.04	1.2	7.5	52	164	154	265	56	25	1.4	16	12
28	.04	1.5	8.0	53	154	147	233	61	16	1.4	10	8.3
29	.04	1.9	9.0	52	---	144	189	246	10	1.7	6.5	5.3
30	.04	2.1	12	51	---	142	160	305	6.5	1.2	4.6	3.8
31	.04	---	15	49	---	147	---	300	---	.90	4.0	---
TOTAL	1.37	12.01	192.0	1103	4063	4368	4984	2576	23872.5	738.80	584.26	1824.7
MEAN	.044	.40	6.19	35.6	145	141	166	83.1	796	23.8	18.8	60.8
MAX	.09	2.1	15	53	222	185	265	305	3110	119	80	424
MIN	.03	.04	2.5	23	45	112	124	34	6.5	.90	.40	1.3
CFSM	.000	.001	.01	.08	.32	.31	.36	.18	1.75	.05	.04	.13
IN.	.00	.00	.02	.09	.33	.36	.41	.21	1.95	.06	.05	.15

CAL YR 1980 TOTAL 144870.64 MEAN 396 MAX 3410 MIN .00 CFSM .87 IN 11.82
WTR YR 1981 TOTAL 44319.64 MEAN 121 MAX 3110 MIN .03 CFSM .27 IN 3.62

CHOWAN RIVER BASIN

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA
(National stream-quality accounting network station)

LOCATION.--Lat 36°45'45", long 76°53'55", Southampton County, Hydrologic Unit 03010202, on right bank 0.4 mi (0.6 km) south of Burdette, 0.5 mi (0.8 km) upstream from Black Creek, 3.3 mi (5.3 km) downstream from Corrowaugh Swamp, and 6.0 mi (9.7 km) north of Franklin.

DRAINAGE AREA.--617 mi² (1,598 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1944 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1.56 ft (0.475 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair except during periods of tidal effect, which are poor. Low flow reversed by tide some years. Diversion above station by city of Norfolk for municipal supply most years.

AVERAGE DISCHARGE.--37 years, 642 ft³/s (18.18 m³/s), 14.13 in/yr (359 mm/yr), adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s (267 m³/s) Sept. 14, 1960, gage height, 17.14 ft (5.224 m), from floodmarks; minimum daily, 0.10 ft³/s (0.003 m³/s) Dec. 4, 1980.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of about 22 ft (6.7 m), discharge, 21,000 ft³/s (595 m³/s), from rating curve extended above 9,400 ft³/s (270 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,910 ft³/s (82.4 m³/s) June 9, gage height, 10.61 ft (3.234 m); minimum daily, 0.10 ft³/s (0.003 m³/s) Dec. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.9	.22	.80	7.5	22	159	185	183	416	5.7	8.0	2.2
2	4.0	.34	.60	11	30	147	188	147	348	15	6.3	5.4
3	5.9	.47	.44	12	30	135	184	105	301	18	13	4.2
4	6.6	.72	.10	13	35	126	177	87	306	24	15	2.2
5	5.7	.88	.36	12	39	138	170	73	595	29	13	3.3
6	3.6	.90	.68	11	40	166	194	61	896	26	13	4.2
7	2.8	.81	.83	13	40	189	213	57	1250	52	12	8.0
8	3.3	1.7	1.0	12	49	199	232	53	2170	84	11	28
9	5.0	1.6	1.2	10	68	204	244	57	2810	92	21	68
10	4.8	1.3	2.2	10	85	200	244	50	2870	88	18	79
11	5.2	.95	3.1	7.6	105	188	228	57	2680	94	13	55
12	5.0	1.1	2.2	6.2	150	171	206	62	2360	89	86	28
13	3.0	1.2	1.5	5.3	190	156	188	57	2000	72	102	13
14	2.5	1.2	.71	4.9	215	143	169	51	1640	51	59	5.4
15	2.3	1.3	1.1	4.7	229	128	167	51	1300	32	30	6.5
16	2.7	1.4	2.1	4.7	235	122	147	51	973	20	24	32
17	2.2	1.3	2.6	4.8	237	121	136	36	717	18	21	89
18	2.4	2.3	2.6	7.5	238	123	127	27	570	20	23	200
19	3.9	2.4	1.4	6.0	238	124	116	26	435	11	28	454
20	3.1	2.4	1.8	5.9	235	121	110	31	316	20	51	541
21	2.0	2.5	2.7	6.9	235	119	106	32	221	25	51	425
22	.60	2.5	3.1	10	234	117	103	34	143	30	58	262
23	.60	2.5	2.1	14	235	129	102	36	109	24	158	143
24	.50	2.7	2.7	15	236	169	116	37	80	14	203	87
25	1.6	3.5	3.1	18	227	193	153	44	56	12	117	63
26	2.2	2.6	5.4	22	211	200	213	49	42	38	72	44
27	2.4	2.6	5.3	24	191	201	265	50	32	29	41	31
28	1.7	3.5	3.5	33	172	187	283	60	21	14	26	21
29	.80	2.6	2.6	26	---	172	264	170	13	14	19	16
30	.23	1.2	2.8	25	---	170	220	410	6.8	8.3	13	11
31	.16	---	5.1	23	---	181	---	444	---	9.3	8.0	---
TOTAL	90.69	50.69	65.72	388.0	4251	4898	5450	2688	25676.8	1078.3	1333.3	2731.4
MEAN	2.93	1.69	2.12	12.5	152	158	182	86.7	856	34.8	43.0	91.0
MAX	6.6	3.5	5.4	33	238	204	283	444	2870	94	203	541
MIN	.16	.22	.10	4.7	22	117	102	26	6.8	5.7	6.3	2.2
(*)	8.63	.57	4.14	23.2	35.6	36.5	33.8	29.0	26.7	14.3	16.6	22.8
MEAN‡	11.6	2.26	6.26	35.7	188	194	216	116	883	49.1	59.6	114
CFSM‡	.02	.004	.01	.06	.30	.31	.35	.19	1.43	.08	.10	.18
IN‡	.02	.00	.01	.07	.31	.36	.39	.22	1.60	.09	.12	.20

CAL YR 1980 TOTAL 157322.00 MEAN 430 MAX 3120 MIN .10 MEAN‡ 434 CFSM‡ .70 IN‡ 9.53
WTR YR 1981 TOTAL 48701.90 MEAN 133 MAX 2870 MIN .10 MEAN‡ 156 CFSM‡ .25 IN‡ 3.39

* Diversion, in cubic feet per second, by city of Norfolk.
‡ Adjusted for diversion.

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples taken at bridge 2.0 mi (3.2 km) upstream from discharge station.

PERIOD OF RECORD.--Water years 1947, 1952, 1975 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)
OCT 03...	1130	5.9	150	7.0	20.5	2.1	3.4	42	78	61	14
NOV 04...	1200	.18	170	7.2	13.0	.90	7.5	K4	21	64	23
DEC 11...	0930	3.2	180	7.9	8.0	.80	8.0	21	43	68	25
JAN 13...	1200	3.7	366	6.8	.0	.60	10.1	K2	K2	140	120
FEB 04...	1000	36	350	6.5	1.5	.60	13.3	K1	20	140	130
MAR 03...	1030	113	245	6.8	9.5	.90	9.6	14	13	86	83
APR 07...	0930	209	160	6.5	13.0	2.6	7.5	--	--	60	56
MAY 05...	0900	74	130	6.4	16.0	1.8	6.5	12	64	41	34
JUN 02...	1030	296	100	6.0	21.5	7.4	4.5	100	240	31	23
JUL 08...	1015	89	130	6.8	25.5	4.7	3.3	270	110	49	19
AUG 12...	1000	89	130	6.7	25.5	5.2	1.5	M0	M0	46	18
SEP 08...	0930	27	134	6.7	23.0	3.0	5.3	49	130	52	28

K Result based on colony count outside optimal range.
M0 All plates with colonies too numerous to count.

DATE	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)
OCT 03...	20	2.8	5.2	2.7	47	6.1	6.8	.2	2.7	94	77
NOV 04...	21	2.8	5.0	2.9	41	18	9.5	.1	1.9	94	88
DEC 11...	22	3.1	4.9	3.1	43	20	9.8	.1	1.4	111	91
JAN 13...	45	5.6	8.4	2.6	13	130	15	.1	17	267	232
FEB 04...	48	4.7	8.5	1.6	10	120	13	<.1	19	238	222
MAR 03...	29	3.2	7.6	1.6	3.0	79	13	<.1	6.4	172	142
APR 07...	20	2.5	7.5	1.8	4.0	49	13	<.1	14	136	110
MAY 05...	14	1.5	6.2	1.5	7.0	26	12	<.1	13	98	81
JUN 02...	10	1.4	5.0	1.7	6.0	16	13	<.1	9.9	106	62
JUL 08...	17	1.7	5.0	1.8	30	14	6.3	<.1	13	119	80
AUG 12...	15	2.1	5.7	2.5	28	17	8.6	.1	9.7	114	80
SEP 08...	17	2.2	5.2	1.7	24	22	10	<.1	9.7	111	83

< Actual value is known to be less than the value shown.

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA TOTAL (MG/L AS N)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N)	NITROGEN, TOTAL (MG/L AS N)	NITROGEN DISSOLVED (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	PHOSPHORUS, DISSOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
OCT 03...	.09	.10	.230	.240	.81	.62	.90	.72	.060	.030	--
NOV 04...	.30	.29	.060	.040	.42	.33	.72	.62	.050	.010	1
DEC 11...	.25	.24	.010	.010	.30	.29	.55	.53	.020	.020	--
JAN 13...	.03	.03	<.010	<.010	.17	.16	.20	.19	.010	.010	--
FEB 04...	.01	.02	.010	.010	.31	.17	.32	.19	.010	<.010	<1
MAR 03...	.05	.05	.020	.030	.46	.27	.51	.32	.020	<.010	--
APR 07...	.03	.03	.070	.050	.47	.40	.50	.43	.030	.010	--
MAY 05...	.06	.05	.110	.120	.96	.92	1.0	.97	.050	.020	<1
JUN 02...	.08	.06	.120	.050	.84	.75	.92	.81	.050	.060	--
JUL 08...	.28	.28	.050	.050	.96	.73	1.2	1.0	.080	.030	--
AUG 12...	.05	.04	.070	.070	.70	.61	.75	.65	.110	.040	3
SEP 08...	.06	.07	.040	.020	.48	.45	.54	.52	.030	<.010	--

< Actual value is known to be less than the value shown.

DATE	ARSENIC DISSOLVED (UG/L AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	BARIUM, DISSOLVED (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, TOTAL RECOVERABLE (UG/L AS CO)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, DISSOLVED (UG/L AS CU)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--
NOV 04...	1	100	70	<1	<1	10	10	1	<1	1	<1
DEC 11...	--	--	--	--	--	--	--	--	--	--	--
JAN 13...	--	--	--	--	--	--	--	--	--	--	--
FEB 04...	<1	100	70	<1	<1	20	10	3	3	3	1
MAR 03...	--	--	--	--	--	--	--	--	--	--	--
APR 07...	--	--	--	--	--	--	--	--	--	--	--
MAY 05...	<1	100	60	3	3	20	10	6	4	3	2
JUN 02...	--	--	--	--	--	--	--	--	--	--	--
JUL 08...	--	--	--	--	--	--	--	--	--	--	--
AUG 12...	1	100	60	1	<1	10	10	<1	<1	9	<1
SEP 08...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG)	MERCURY DIS- SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI)	NICKEL, DIS- SOLVED (UG/L AS NI)	SELE- NIUM, TOTAL (UG/L AS SE)
OCT 03...	--	--	--	--	--	--	--	--	--	--	--
NOV 04...	540	280	<1	<1	150	120	<.1	<.1	3	<1	<1
DEC 11...	--	--	--	--	--	--	--	--	--	--	--
JAN 13...	--	--	--	--	--	--	--	--	--	--	--
FEB 04...	120	20	62	2	530	530	<.1	<.1	4	5	<1
MAR 03...	--	--	--	--	--	--	--	--	--	--	--
APR 07...	--	--	--	--	--	--	--	--	--	--	--
MAY 05...	2300	1200	2	<1	790	790	<.1	<.1	6	4	<1
JUN 02...	--	--	--	--	--	--	--	--	--	--	--
JUL 08...	--	--	--	--	--	--	--	--	--	--	--
AUG 12...	2700	750	6	<1	1400	1300	.3	.1	9	2	<1
SEP 08...	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

DATE	SELE- NIUM, DIS- SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG)	SILVER, DIS- SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN)	ZINC, DIS- SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS- SOLVED (MG/L AS C)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	PHYTO- PLANK- TON, TOTAL (CELLS PER ML)	SEDI- MENT, SUS- PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT 03...	--	--	--	--	--	9.9	--	--	--	11	82
NOV 04...	<1	<1	<1	10	<4	--	7.4	.6	1800	2	100
DEC 11...	--	--	--	--	--	5.7	--	--	--	10	67
JAN 13...	--	--	--	--	--	7.4	--	--	--	7	38
FEB 04...	<1	<1	<1	100	70	--	19	--	--	2	100
MAR 03...	--	--	--	--	--	8.0	--	--	660	10	100
APR 07...	--	--	--	--	--	10	--	--	--	39	100
MAY 05...	<1	<1	<1	20	20	--	16	1.3	410	13	85
JUN 02...	--	--	--	--	--	20	--	--	39	18	81
JUL 08...	--	--	--	--	--	21	--	--	750	12	91
AUG 12...	<1	3	<1	10	<4	--	12	--	9700	16	88
SEP 08...	--	--	--	--	--	11	--	--	4800	10	100

< Actual value is known to be less than the value shown.

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE TIME	NOV 4,80 1200	MAR 3,81 1030	MAY 5,81 0900	JUN 2,81 1030
TOTAL CELLS/ML	1800	660	410	39
DIVERSITY: DIVISION	1.3	0.8	0.8	0.9
.CLASS	1.3	0.8	0.8	0.9
..ORDER	1.9	0.8	0.8	0.9
...FAMILY	2.0	0.8	0.8	0.9
....GENUS	2.2	0.8	0.8	0.9

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	--	-
...MICRACTINIACEAE								
....MICRACTINIUM	--	-	--	-	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	52	3	13	2	--	-	--	-
....CHODATELLA	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	--	-
....SELENASTRUM	26	1	--	-	--	-	--	-
...SCENEDESMACEAE								
....CRUCIGENIA	--	-	--	-	--	-	--	-
....SCENEDESMUS	52	3	--	-	--	-	26#	67
....TETRASTRUM	52	3	--	-	--	-	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	13	1	--	-	39	9	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	120	6	--	-	--	-	--	-
....MELOSIRA	90	5	--	-	--	-	--	-
..PENNALES								
...FRAGILARIACEAE								
....SYNEDRA	--	-	--	-	--	-	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	26	4	--	-	--	-
.CHRYSOPHYCEAE								
..CHRYSOMONADALES								
...MALLOMONADACEAE								
....MALLOMONAS	--	-	13	2	--	-	--	-
...SYNURACEAE								
....SYNURA	--	-	--	-	--	-	--	-
.XANTHOPHYCEAE								
..HETEROCOCCALES								
...CENTRITRACTACEAE								
....CENTRITRACTUS	--	-	--	-	--	-	--	-
...CHLOROTHECIACEAE								
....OPHIOCYTIUM	--	-	--	-	--	-	--	-
CRYPTOPHYTA (CRYPTOMONADS)								
.CRYPTOPHYCEAE								
..CRYPTOMONADALES								
...CRYPTOCHRYSIDACEAE								
....CHROOMONAS	--	-	--	-	--	-	--	-
...CRYPTOMONADACEAE								
....CRYPTOMONAS	--	-	39	6	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	NOV 4,80	MAR 3,81	MAY 5,81	JUN 2,81
TIME	1200	1030	0900	1030
TOTAL CELLS/ML	1800	660	410	39
DIVERSITY: DIVISION	1.3	0.8	0.8	0.9
.CLASS	1.3	0.8	0.8	0.9
..ORDER	1.9	0.8	0.8	0.9
...FAMILY	2.0	0.8	0.8	0.9
....GENUS	2.2	0.8	0.8	0.9

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROOCOCCALES								
...CHROOCOCCACEAE								
....AGMENELLUM	--	-	--	-	--	-	--	-
....ANACYSTIS	1000#	55	--	-	--	-	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	350#	84	--	-
....OSCILLATORIA	310#	17	570#	86	--	-	--	-
....PHORMIDIUM	--	-	--	-	--	-	--	-
...RIVULARIACEAE								
....RAPHIDIOPSIS	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-
....LEPOCINCLIS	--	-	--	-	--	-	--	-
....PHACUS	--	-	--	-	--	-	--	-
....TRACHELOMONAS	100	6	--	-	26	6	13#	33
PYRRHOPHYTA (FIRE ALGAE)								
.DINOPHYCEAE								
..PERIDINIALES								
...GLENODINIACEAE								
....GLENODINIUM	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	JUL 8,81		AUG 12,81		SEP 8,81	
TIME	1015		1000		0930	
TOTAL CELLS/ML	750		9700		4800	
DIVERSITY: DIVISION	1.2		1.6		2.0	
.CLASS	1.2		1.7		2.2	
..ORDER	1.3		1.9		2.7	
...FAMILY	1.3		2.1		3.1	
....GENUS	1.4		2.4		3.7	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...CHARACIACEAE						
....SCHROEDERIA	--	-	--	-	*	0
...MICRACTINIACEAE						
....MICRACTINIUM	--	-	52	1	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	400	8
....CHODATELLA	--	-	*	0	--	-
....DICTYOSPHAERIUM	--	-	620	6	140	3
....KIRCHNERIELLA	--	-	52	1	47	1
....SELENASTRUM	--	-	52	1	--	-
...SCENEDESMACEAE						
....CRUCIGENIA	--	-	--	-	190	4
....SCENEDESMUS	--	-	570	6	610	13
....TETRASTRUM	--	-	--	-	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CHLAMYDOMONAS	550#	74	78	1	300	6
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	*	0	350	7
....MELOSIRA	64	9	2500#	26	280	6
..PENNALES						
...FRAGILARIACEAE						
....SYNEDRA	13	2	--	-	*	0
...NITZSCHIACEAE						
....NITZSCHIA	--	-	*	0	70	1
.CHRYSOPHYCEAE						
..CHRYSOMONADALES						
...MALLOMONADACEAE						
....MALLOMONAS	--	-	100	1	120	2
...SYNURACEAE						
....SYNURA	--	-	--	-	330	7
.XANTHOPHYCEAE						
..HETEROCOCCALES						
...CENTRITRACTACEAE						
....CENTRITRACTUS	--	-	--	-	*	0
...CHLOROTHECIACEAE						
....OPHIOCYTIUM	--	-	*	0	--	-
CRYPTOPHYTA (CRYPTOMONADS)						
.CRYPTOPHYCEAE						
..CRYPTOMONADALES						
...CRYPTOCHRYSIDACEAE						
....CHROOMONAS	--	-	*	0	--	-
...CRYPTOMONADACEAE						
....CRYPTOMONAS	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

02049500 BLACKWATER RIVER NEAR FRANKLIN, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	JUL 8,81	AUG 12,81	SEP 8,81
TIME	1015	1000	0930
TOTAL CELLS/ML	750	9700	4800
DIVERSITY: DIVISION	1.2	1.6	2.0
.CLASS	1.2	1.7	2.2
..ORDER	1.3	1.9	2.7
...FAMILY	1.3	2.1	3.1
....GENUS	1.4	2.4	3.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROOCOCCALES						
...CHROOCOCCACEAE						
....AGMENELLUM	--	-	410	4	--	-
....ANACYSTIS	--	-	4600#	47	820#	17
..HORMOGONALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	--	-
....PHORMIDIUM	--	-	--	-	160	3
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	310	3	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	39	5	--	-	47	1
....LEPOCINCLIS	--	-	--	-	*	0
....PHACUS	--	-	--	-	70	1
....TRACHELOMONAS	39	5	290	3	770#	16
PYRRHOPHYTA (FIRE ALGAE)						
.DINOPHYCEAE						
..PERIDINIALES						
...GLENODINIACEAE						
....GLENODINIUM	39	5	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02051500 MEHERRIN RIVER NEAR LAWRENCEVILLE, VA

LOCATION.--Lat 36°43'00", long 77°49'55", Brunswick County, Hydrologic Unit 03010204, on right bank 50 ft (15 m) upstream from Gholson Bridge on State Highway 715, 0.6 mi (1.0 km) upstream from Allen Creek, and 3.0 mi (4.8 km) southeast of Lawrenceville.

DRAINAGE AREA.--552 mi^2 (1,430 km^2).

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1932(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 136.56 ft (41.623 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 17, 1931, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 496 ft^3/s (14.05 m^3/s), 12.20 in/yr (310 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,000 ft^3/s (1,080 m^3/s) Aug. 17, 1940, gage height, 42.0 ft (12.80 m), from floodmark, from rating curve extended above 13,000 ft^3/s (370 m^3/s) on basis of velocity-area studies and records for Nottoway River near Stony Creek; minimum, 4.2 ft^3/s (0.12 m^3/s) Oct. 7, 8, 1954; minimum gage height, 0.72 ft (0.219 m) Sept. 23, 24, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,550 ft^3/s (129 m^3/s) at 1800 hours June 8, gage height, 15.54 ft (4.737 m), no other peak above base of 4,500 ft^3/s (130 m^3/s); minimum, 30 ft^3/s (0.85 m^3/s) Sept. 30, gage height, 1.45 ft (0.442 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	112	162	136	92	177	428	157	143	59	76	48
2	80	111	143	128	164	173	313	148	645	68	65	45
3	80	100	133	120	242	167	244	138	370	112	59	45
4	96	96	125	112	370	158	210	131	219	370	792	44
5	100	171	122	78	177	184	193	125	1200	1260	841	43
6	98	202	118	100	189	206	295	123	591	1110	258	43
7	86	148	117	146	185	204	504	122	1510	937	291	46
8	76	123	118	141	200	184	359	122	4190	375	362	52
9	70	109	118	135	187	166	263	118	1300	208	166	61
10	64	102	136	126	204	158	256	128	403	145	153	90
11	60	96	177	123	258	153	265	182	278	115	143	65
12	60	93	150	109	1470	150	260	1100	212	93	122	53
13	56	91	138	100	729	148	235	495	178	89	100	45
14	52	92	130	103	377	143	217	270	157	82	102	40
15	52	92	123	106	286	139	229	196	141	76	96	37
16	51	93	122	115	248	143	229	166	125	71	80	41
17	51	95	122	120	219	158	221	145	114	72	71	353
18	52	122	120	118	202	160	206	135	105	75	64	277
19	106	138	118	117	196	157	200	135	145	71	62	175
20	171	175	115	122	368	146	198	166	153	66	92	114
21	189	146	102	136	813	139	217	410	123	66	103	86
22	114	122	86	167	511	136	244	439	103	68	89	70
23	85	111	128	178	362	164	219	252	87	64	88	59
24	72	118	136	184	295	278	280	182	80	61	81	51
25	88	364	123	185	249	481	476	153	75	1580	70	47
26	158	541	120	173	229	336	319	135	77	417	62	44
27	167	266	157	169	200	250	239	122	82	198	58	42
28	131	198	157	157	187	208	202	198	67	128	54	39
29	108	184	150	145	---	189	184	284	62	180	50	38
30	102	180	153	131	---	185	167	178	60	112	47	32
31	111	---	145	109	---	258	---	150	---	85	48	---
TOTAL	2851	4591	4064	4089	9209	5898	7872	6805	12995	8413	4745	2225
MEAN	92.0	153	131	132	329	190	262	220	433	271	153	74.2
MAX	189	541	177	185	1470	481	504	1100	4190	1580	841	353
MIN	51	91	86	78	92	136	167	118	60	59	47	32
CFSM	.17	.28	.24	.24	.60	.34	.48	.40	.78	.49	.28	.13
IN.	.19	.31	.27	.28	.62	.40	.53	.46	.88	.57	.32	.15

CAL YR 1980 TOTAL 181890 MEAN 497 MAX 5620 MIN 28 CFSM .90 IN 12.26
WTR YR 1981 TOTAL 73757 MEAN 202 MAX 4190 MIN 32 CFSM .37 IN 4.97

02051600 GREAT CREEK NEAR COCHRAN, VA

LOCATION.--Lat 36°48'46", long 77°55'19", Brunswick County, Hydrologic Unit 03010204, on left bank at upstream side of bridge on State Highway 618, 1.4 mi (2.3 km) southwest of Cochran, and 9.5 mi (15.3 km) upstream from Roses Creek.

DRAINAGE AREA.--30.7 mi^2 (79.5 km^2).

PERIOD OF RECORD.--May 1958 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 215.72 ft (65.751 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--23 years, 30.3 ft^3/s (0.858 m^3/s), 13.40 in/yr (340 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,030 ft^3/s (199 m^3/s) Oct. 6, 1972, gage height, 16.65 ft (5.075 m), from rating curve extended above 1,600 ft^3/s (45 m^3/s) on basis of contracted-opening measurements at gage heights 12.08 ft (3.682 m), 14.57 ft (4.441 m), and 16.65 ft (5.075 m); minimum, 0.10 ft^3/s (0.003 m^3/s) Oct. 11, 12, 1965, Sept. 23, 1968; minimum gage height, 1.50 ft (0.457 m) Aug. 19, 1965.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft^3/s (8.5 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
June 5	0800	559	15.8	7.84	2.390	Aug. 4	1400	*636	18.0	8.16	2.487
June 7	1430	511	14.5	7.60	2.316						

Minimum discharge, 0.94 ft^3/s (0.027 m^3/s) Sept. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	5.4	7.8	8.0	8.0	9.8	13	7.2	11	4.0	4.2	4.8
2	2.6	4.4	7.6	7.6	11	9.8	13	6.8	16	14	4.0	4.2
3	3.2	3.9	7.2	7.2	15	9.5	12	6.4	12	19	4.4	4.0
4	3.7	7.6	7.0	6.6	11	8.8	10	5.8	26	176	302	3.9
5	3.0	16	6.8	6.0	9.0	12	11	5.8	310	117	68	3.7
6	3.0	9.2	6.8	5.6	8.0	12	32	5.4	61	108	26	4.0
7	3.2	6.0	7.0	5.0	7.5	10	21	5.6	322	178	35	4.6
8	2.7	5.2	7.0	4.8	8.5	9.0	15	5.8	98	55	22	5.8
9	2.6	4.6	7.0	4.7	9.5	8.5	14	5.4	41	35	16	7.2
10	2.3	4.4	9.0	4.5	8.2	8.5	14	6.8	26	25	12	5.2
11	2.2	4.2	11	4.3	22	8.2	12	52	19	20	12	4.0
12	2.0	4.4	9.0	4.2	30	8.0	12	96	14	17	11	3.4
13	1.9	4.4	8.0	4.1	16	7.8	12	28	13	15	10	3.2
14	1.8	4.4	7.6	4.3	13	7.6	11	17	12	14	8.8	2.9
15	1.6	4.6	7.4	4.4	12	7.6	12	13	10	14	7.6	2.7
16	1.6	4.6	7.4	4.5	11	8.5	11	11	8.2	13	7.0	3.7
17	1.8	4.8	7.6	5.0	11	12	10	9.5	7.0	14	6.2	6.6
18	1.9	9.0	7.4	6.0	10	10	10	8.5	8.5	14	5.2	5.4
19	6.4	8.5	7.4	8.0	11	9.2	9.5	12	17	12	7.0	6.2
20	8.5	6.4	7.2	10	38	8.5	10	26	10	11	12	4.0
21	4.4	5.8	6.8	14	30	8.0	12	41	8.0	11	9.2	3.3
22	3.2	5.4	6.2	17	20	7.8	9.8	20	6.6	11	9.0	2.7
23	2.6	5.2	6.4	12	15	14	9.0	13	5.4	10	11	2.3
24	2.4	9.0	6.6	11	14	28	30	11	4.6	23	8.5	1.9
25	7.8	23	6.6	8.5	12	17	19	9.2	4.4	116	7.2	1.6
26	14	12	7.0	8.2	11	13	12	8.2	4.4	25	6.4	1.5
27	6.4	10	7.0	8.8	10	12	11	7.6	4.0	13	5.6	1.4
28	4.4	11	8.0	9.2	9.8	10	9.8	29	3.6	9.8	5.0	1.2
29	3.7	10	10	8.2	---	10	8.2	21	3.3	7.4	4.6	1.1
30	4.8	8.8	10	7.6	---	12	7.6	13	3.0	6.0	4.8	1.0
31	6.4	---	8.8	6.7	---	20	---	10	---	4.8	5.0	---
TOTAL	118.1	222.2	236.6	226.0	391.5	337.1	392.9	517.0	1089.0	1112.0	656.7	107.5
MEAN	3.81	7.41	7.63	7.29	14.0	10.9	13.1	16.7	36.3	35.9	21.2	3.58
MAX	14	23	11	17	38	28	32	96	322	178	302	7.2
MIN	1.6	3.9	6.2	4.1	7.5	7.6	7.6	5.4	3.0	4.0	4.0	1.0
CFSM	.12	.24	.25	.24	.46	.36	.43	.54	1.18	1.17	.69	.12
IN.	.14	.27	.29	.27	.47	.41	.48	.63	1.32	1.35	.80	.13

CAL YR 1980 TOTAL 9336.98 MEAN 25.5 MAX 345 MIN .66 CFSM .83 IN 11.31
WTR YR 1981 TOTAL 5406.60 MEAN 14.8 MAX 322 MIN 1.0 CFSM .48 IN 6.55

02052000 MEHERRIN RIVER AT EMPORIA, VA
(National stream-quality accounting network station)

LOCATION.--Lat 36°41'24", long 77°32'27", Emporia City, Hydrologic Unit 03010204, on left bank at downstream side of bridge on U.S. Highway 301 and 1.2 mi (1.9 km) upstream from Falling Run.

DRAINAGE AREA.--747 mi² (1,935 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1951 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 67.17 ft (20.473 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Prior to November 1965, low and medium flow regulated by powerplant 0.8 mi (1.3 km) above station.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--30 years, 689 ft³/s (19.51 m³/s), 12.53 in/yr (318 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,100 ft³/s (598 m³/s) Oct. 8, 1972, gage height, 27.38 ft (8.345 m); minimum, 5.0 ft³/s (0.14 m³/s) Nov. 11, 1954, gage height, 1.00 ft (0.305 m); minimum daily, 8.0 ft³/s (0.23 m³/s) Nov. 8-10, 1954.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 31.5 ft (9.60 m), from floodmarks, discharge, about 40,000 ft³/s (1,100 m³/s), from rating curve extended above 18,000 ft³/s (510 m³/s) on basis of record for station near Lawrenceville.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,790 ft³/s (136 m³/s) June 9, gage height, 16.70 ft (5.090 m), no peak above base of 6,000 ft³/s (170 m³/s); minimum, 42 ft³/s (1.19 m³/s) Sept. 30, gage height, 1.80 ft (0.549 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	136	203	191	118	243	439	206	190	78	96	70
2	86	133	190	180	185	233	463	194	392	81	83	63
3	101	127	168	170	228	226	337	186	625	108	75	61
4	109	125	158	138	374	219	296	173	315	202	186	58
5	113	136	152	109	244	251	274	166	726	1350	1370	57
6	120	226	149	113	179	283	332	163	1330	1080	615	55
7	112	204	148	130	185	279	553	160	1040	1570	236	54
8	95	166	146	140	195	260	527	159	3550	721	437	57
9	80	144	146	140	210	236	377	155	3530	324	251	65
10	70	132	173	130	222	223	330	173	803	212	181	79
11	66	119	230	129	313	216	321	213	384	172	178	98
12	65	112	215	120	1060	210	335	866	283	147	168	79
13	58	108	188	118	1430	206	303	874	233	130	140	65
14	56	109	172	120	606	203	279	365	210	118	126	58
15	51	109	162	139	395	198	272	238	191	107	128	52
16	50	112	158	132	332	203	278	196	176	100	117	57
17	50	116	158	134	301	219	272	173	157	98	100	96
18	109	158	156	138	279	221	263	155	147	96	87	397
19	162	174	150	143	270	227	265	152	152	98	114	209
20	232	179	146	150	323	216	265	170	200	91	122	163
21	222	194	163	168	848	285	247	272	173	95	134	121
22	192	161	102	196	793	280	265	558	144	99	144	98
23	130	140	100	215	518	238	272	344	125	91	125	79
24	102	195	108	210	408	342	323	234	111	83	121	69
25	158	297	110	212	342	511	520	194	100	1000	105	61
26	161	672	118	222	306	490	463	169	90	952	91	55
27	202	442	123	215	278	363	323	152	86	297	81	51
28	186	266	152	210	252	294	267	240	87	186	74	50
29	149	224	196	198	---	269	240	379	85	164	71	46
30	137	210	202	184	---	272	219	278	80	165	75	42
31	132	---	200	164	---	323	---	205	---	120	85	---
TOTAL	3612	5546	4917	4962	11194	8083	9880	8162	15715	10135	5916	2565
MEAN	117	185	159	160	400	261	329	263	524	327	191	85.5
MAX	232	672	230	222	1430	511	553	874	3550	1570	1370	397
MIN	50	108	100	109	118	198	219	152	80	78	71	42
CFSM	.16	.25	.21	.21	.54	.35	.44	.35	.70	.44	.26	.11
IN.	.18	.28	.24	.25	.56	.40	.49	.41	.78	.50	.29	.13

CAL YR 1980 TOTAL 239560 MEAN 655 MAX 6250 MIN 78 CFSM .88 IN 11.93
WTR YR 1981 TOTAL 90687 MEAN 248 MAX 3550 MIN 42 CFSM .33 IN 4.52

02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to September 1971, October 1972 to September 1978.
WATER TEMPERATURES: April 1968 to September 1971, October 1972 to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV											
05...	1300	123	98	7.4	11.0	.80	11.8	K5	18	22	0
JAN											
14...	1230	120	93	7.6	1.5	3.0	15.0	10	44	25	0
MAR											
04...	0830	218	85	6.8	9.0	8.3	11.5	11	K5	26	5
MAY											
06...	0800	163	98	7.4	18.0	1.3	9.0	17	48	26	0
JUL											
07...	1245	1710	58	7.0	23.5	150	--	--	440	16	0
SEP											
09...	0800	64	65	7.2	23.0	14	--	21	100	26	0

K Result based on colony count outside optimal range.

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV											
05...	5.0	2.3	9.2	2.3	24	4.4	9.4	<.1	16	72	64
JAN											
14...	5.9	2.5	8.3	1.5	25	4.7	7.8	.1	21	77	67
MAR											
04...	2.3	4.9	6.5	1.5	21	7.1	5.4	<.1	--	66	--
MAY											
06...	6.3	2.6	7.4	1.8	28	4.7	5.8	.1	17	68	64
JUL											
07...	3.9	1.4	4.9	1.8	19	5.9	4.4	<.1	12	--	47
SEP											
09...	5.1	3.2	6.5	1.8	29	2.5	5.8	.1	13	65	56

< Actual value is known to be less than the value shown.

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
NOV											
05...	.04	.05	.070	.070	.17	.15	.21	.20	.050	.050	<1
JAN											
14...	.04	.04	.020	.020	.08	.08	.12	.12	.030	.020	--
MAR											
04...	.12	.10	.050	.050	.41	.23	.53	.33	.050	.020	--
MAY											
06...	.07	.06	.080	.070	.38	.35	.45	.41	.050	.030	<1
JUL											
07...	.17	.19	.070	.020	.60	.50	.77	.69	.190	.050	2
SEP											
09...	.09	.09	.110	.110	.37	.33	.46	.42	.030	<.010	2

< Actual value is known to be less than the value shown.

02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)
NOV 05...	<1	<50	30	1	1	10	10	1	<1	3	<1
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--	--
MAY 06...	<1	100	30	2	1	10	<10	2	<1	3	1
JUL 07...	1	100	100	1	<1	10	10	3	1	5	4
SEP 09...	1	100	100	<1	<1	<10	<10	<1	<1	5	2

< Actual value is known to be less than the value shown.

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)
NOV 05...	960	130	2	<1	120	70	<.1	<.1	4	<1	<1
JAN 14...	--	--	--	--	--	--	--	--	--	--	--
MAR 04...	--	--	--	--	--	--	--	--	--	--	--
MAY 06...	970	320	1	<1	200	150	<.1	<.1	4	2	<1
JUL 07...	3300	310	10	1	120	30	.2	.1	5	5	<1
SEP 09...	1100	260	4	<1	240	230	1.3	<.1	8	1	<1

< Actual value is known to be less than the value shown.

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV 05...	<1	<1	<1	10	<4	--	7.3	.5	390	13	96
JAN 14...	--	--	--	--	--	2.7	--	--	--	7	63
MAR 04...	--	--	--	--	--	4.0	--	--	490	21	100
MAY 06...	<1	1	1	20	9	--	3.9	.6	490	20	91
JUL 07...	<1	<1	<1	20	10	--	7.0	1.3	2900	169	100
SEP 09...	<1	<1	<1	20	<4	--	6.8	.5	1700	--	--

< Actual value is known to be less than the value shown.

02052000 MEHERRIN RIVER AT EMPORIA, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	NOV 5,80	MAR 4,81	MAY 6,81	JUL 7,81	SEP 9,81
TIME	1300	0830	0800	1245	0800
TOTAL CELLS/ML	390	490	490	2900	1700
DIVERSITY: DIVISION	0.9	0.7	0.9	1.5	0.5
.CLASS	0.9	0.7	0.9	1.5	0.5
..ORDER	1.6	1.4	1.6	2.2	0.5
...FAMILY	1.6	1.7	2.2	3.3	0.5
....GENUS	1.6	1.9	3.1	3.9	0.6

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	--	-	--	-	--	-	--	-	14	1
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	13	3	77#	16	42	1	--	-
....DICTYOSPHAERIUM	--	-	--	-	26	5	180	6	--	-
....OOCYSTIS	--	-	--	-	--	-	28	1	42	3
....SELENASTRUM	--	-	13	3	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	52	11	170	6	--	-
....SCENEDESMUS	26	7	--	-	77#	16	280	10	--	-
....TETRASTRUM	--	-	--	-	52	11	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	26	7	--	-	26	5	*	0	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARIUM	--	-	--	-	--	-	70	2	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	13	3	39	8	42	1	14	1
....MELOSIRA	--	-	310#	63	39	8	70	2	28	2
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	--	-	*	0	--	-
....COCCONEIS	--	-	--	-	--	-	28	1	--	-
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	--	-	28	1	--	-
...FRAGILARIACEAE										
....FRAGILARIA	--	-	39	8	--	-	--	-	--	-
....SYNEDRA	--	-	--	-	13	3	28	1	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	--	-	--	-	14	1
...NAVICULACEAE										
....DIPLONEIS	--	-	--	-	--	-	*	0	--	-
....NAVICULA	--	-	13	3	--	-	84	3	--	-
...NITZSCHIACEAE										
....NITZSCHIA	26	7	51	11	90#	18	84	3	14	1
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	220	8	--	-
....ANACYSTIS	52	13	39	8	--	-	170	6	1500#	92
..HORMOGONALES										
...NOSTOCACEAE										
....ANABAENA	--	-	--	-	--	-	280	10	--	-
....APHANIZOMENON	--	-	--	-	--	-	210	7	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	260#	67	--	-	--	-	550#	19	--	-
...RIVULARIACEAE										
....RAPHIDIOPSIS	--	-	--	-	--	-	210	7	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	--	-	--	-	--	-	*	0	--	-
....TRACHELOMONAS	--	-	--	-	--	-	28	1	--	-

NOTE: # - DOMINANT ORGANISM, EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02052500 FOUNTAINS CREEK NEAR BRINK, VA
(Formerly published as Fontaine Creek near Brink)

LOCATION.--Lat 36°36'55", long 77°42'00", Greensville County, Hydrologic Unit 03010204, on left bank 30 ft (9 m) upstream from bridge on State Highway 603, 0.3 mi (0.5 km) downstream from Quarrel Creek, 3.6 mi (5.8 km) west of Brink, and 10 mi (16 km) southwest of Emporia.

DRAINAGE AREA.--65.2 mi² (168.9 km²).

PERIOD OF RECORD.--October 1953 to current year. Prior to October 1980, published as Fontaine Creek near Brink.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 152.59 ft (46.509 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--28 years, 67.9 ft³/s (1.923 m³/s), 14.14 in/yr (359 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,000 ft³/s (453 m³/s) Oct. 6, 1972, gage height, 24.14 ft (7.358 m), from floodmark, from rating curve extended above 3,000 ft³/s (85 m³/s); no flow at times some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 200 ft³/s (5.66 m³/s) Feb. 11, gage height, 5.90 ft (1.798 m), no peak above base of 850 ft³/s (24 m³/s); no flow Oct. 1-19, July 1-3, July 11 to Aug. 20, Sept. 1, 5-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	5.1	11	16	9.2	17	66	6.8	9.5	.00	.00	.00
2	.00	4.7	9.6	14	15	16	53	5.5	11	.00	.00	.06
3	.00	4.5	9.3	12	23	16	39	6.2	9.2	.00	.00	.12
4	.00	4.5	8.8	11	19	15	29	6.4	8.7	.64	.00	.04
5	.00	4.1	7.7	9.6	15	41	25	7.5	36	2.4	.00	.00
6	.00	4.3	7.3	9.1	13	60	51	7.8	43	3.0	.00	.00
7	.00	4.1	7.2	8.8	12	41	50	8.5	38	2.5	.00	.00
8	.00	3.9	6.8	8.2	15	28	34	8.7	26	1.9	.00	.00
9	.00	3.4	6.7	8.0	20	23	27	8.7	13	1.3	.00	.00
10	.00	3.0	19	7.6	23	20	29	13	6.6	.42	.00	.00
11	.00	2.9	54	7.0	102	19	28	30	3.2	.00	.00	.00
12	.00	2.6	42	6.6	137	18	25	36	1.5	.00	.00	.00
13	.00	2.4	26	6.6	68	17	20	19	.64	.00	.00	.00
14	.00	2.8	18	6.7	46	16	18	11	.18	.00	.00	.00
15	.00	3.3	14	6.9	37	15	17	7.0	.06	.00	.00	.00
16	.00	3.4	13	7.0	31	16	15	5.8	.04	.00	.00	.00
17	.00	4.7	12	7.4	27	25	14	5.8	.04	.00	.00	.00
18	.00	29	11	7.8	24	23	13	7.8	.08	.00	.00	.00
19	.00	31	11	8.7	25	21	12	8.2	.12	.00	.00	.00
20	3.9	22	10	9.9	55	21	11	11	2.7	.00	.00	.00
21	2.2	15	9.1	14	69	19	12	15	8.0	.00	.53	.00
22	1.1	11	8.4	23	51	16	11	14	3.4	.00	4.3	.00
23	1.8	8.3	8.6	22	38	46	11	10	2.1	.00	5.1	.00
24	2.2	11	9.0	18	32	77	24	7.8	1.2	.00	3.2	.00
25	10	45	9.5	15	26	53	34	6.2	.75	.00	1.8	.00
26	15	38	10	13	22	38	21	5.3	.75	.00	.86	.00
27	8.7	25	11	13	19	28	13	4.7	.86	.00	.53	.00
28	7.0	20	12	12	20	24	9.5	46	.64	.00	.15	.00
29	5.5	16	18	11	---	23	8.0	37	.18	.00	.10	.00
30	4.9	13	20	10	---	40	7.0	26	.08	.00	.04	.00
31	7.3	---	18	9.5	---	109	---	11	---	.00	.04	---
TOTAL	69.60	348.0	438.0	339.4	993.2	941	726.5	403.7	227.52	12.16	16.65	.22
MEAN	2.25	11.6	14.1	10.9	35.5	30.4	24.2	13.0	7.58	.39	.54	.007
MAX	15	45	54	23	137	109	66	46	43	3.0	5.1	.12
MIN	.00	2.4	6.7	6.6	9.2	15	7.0	4.7	.04	.00	.00	.00
CFSM	.04	.18	.22	.17	.54	.47	.37	.20	.12	.006	.008	.000
IN.	.04	.20	.25	.19	.57	.54	.41	.23	.13	.01	.01	.00

CAL YR 1980 TOTAL 17329.94 MEAN 47.3 MAX 700 MIN .00 CFSM .73 IN 9.89
WTR YR 1981 TOTAL 4515.95 MEAN 12.4 MAX 137 MIN .00 CFSM .19 IN 2.58

02053800 SOUTH FORK ROANOKE RIVER NEAR SHAWSVILLE, VA

LOCATION.--Lat 37°08'24", long 80°16'00", Montgomery County, Hydrologic Unit 03010101, on right bank 95 ft (29 m) downstream from bridge on State Highway 637, 0.3 mi (0.5 km) downstream from Georges Run, 1.3 mi (2.1 km) downstream from Elliott Creek, and 2.0 mi (3.2 km) southwest of Shawsville.

DRAINAGE AREA.--110 mi^2 (285 km^2).

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,361.87 ft (415.098 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1974, water-stage recorder, and Aug. 26, 1974, to July 24, 1975, nonrecording gage at site 95 ft (29 m) upstream at same datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--21 years, 108 ft^3/s (3.059 m^3/s), 13.33 in/yr (339 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,200 ft^3/s (402 m^3/s) June 21, 1972, gage height, 11.12 ft (3.389 m), from high-water mark in well, from rating curve extended above 3,700 ft^3/s (100 m^3/s) on basis of slope-area measurement of peak flow; minimum, 7.5 ft^3/s (0.21 m^3/s) July 27-29, 1966, gage height, 0.37 ft (0.113 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 30, 1959, reached a stage of 9.89 ft (3.014 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 682 ft^3/s (19.3 m^3/s) May 28, gage height, 2.77 ft (0.844 m), no peak above base of 800 ft^3/s (23 m^3/s); minimum, 9.0 ft^3/s (0.25 m^3/s) Jan. 5, result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	60	33	41	37	29	50	111	53	92	42	23	16
2	38	32	40	35	174	47	93	46	81	37	21	17
3	33	31	40	31	73	44	82	42	70	39	21	17
4	30	35	37	27	67	46	74	40	62	44	19	47
5	35	42	38	20	51	78	85	39	71	35	18	37
6	51	34	37	20	41	72	96	37	67	43	18	27
7	39	32	36	18	37	64	83	38	261	44	19	39
8	35	32	35	19	33	57	77	35	130	30	51	27
9	32	31	41	20	33	54	79	34	89	25	32	22
10	32	33	55	21	36	50	77	35	73	23	24	18
11	32	32	44	21	231	48	70	65	61	22	21	16
12	32	30	40	21	95	45	67	53	52	26	22	15
13	31	30	39	23	87	43	70	44	49	25	21	14
14	31	30	38	25	64	42	69	40	44	23	19	13
15	32	33	36	27	53	39	103	59	39	22	18	15
16	32	38	36	30	50	40	90	48	36	51	18	37
17	32	42	36	28	52	37	91	42	33	48	16	25
18	41	57	33	32	58	39	91	42	32	31	15	19
19	77	45	35	27	62	38	80	73	32	26	15	17
20	43	38	31	29	93	36	124	100	30	23	15	16
21	36	37	22	35	81	35	130	102	29	21	15	15
22	34	37	27	34	71	37	104	85	27	19	14	15
23	34	37	33	34	77	41	91	70	24	17	13	14
24	34	56	36	31	78	54	83	60	22	20	12	12
25	75	60	27	31	68	68	71	52	26	46	12	12
26	62	46	26	33	61	74	63	45	39	50	11	11
27	42	46	30	38	55	74	58	68	25	31	11	11
28	39	53	32	37	52	69	53	576	22	27	11	12
29	36	50	38	31	---	62	50	328	21	33	11	12
30	34	44	42	31	---	100	52	178	24	26	12	12
31	34	---	41	23	---	140	---	118	---	24	20	---
TOTAL	1228	1176	1122	869	1962	1723	2467	2647	1663	973	568	580
MEAN	39.6	39.2	36.2	28.0	70.1	55.6	82.2	85.4	55.4	31.4	18.3	19.3
MAX	77	60	55	38	231	140	130	576	261	51	51	47
MIN	30	30	22	18	29	35	50	34	21	17	11	11
CFSM	.36	.36	.33	.26	.64	.51	.75	.78	.50	.29	.17	.18
IN.	.42	.40	.38	.29	.66	.58	.83	.90	.56	.33	.19	.20

CAL YR 1980 TOTAL 38803 MEAN 106 MAX 1300 MIN 22 CFSM .96 IN 13.12
WTR YR 1981 TOTAL 16978 MEAN 46.5 MAX 576 MIN 11 CFSM .42 IN 5.74

02054500 ROANOKE RIVER AT LAFAYETTE, VA

LOCATION.--Lat 37°14'11", long 80°12'34", Montgomery County, Hydrologic Unit 03010101, on right bank 120 ft (37 m) upstream from bridge on State Highway 603 at Lafayette, 0.4 mi (0.6 km) downstream from confluence of North and South Forks, and 1.1 mi (1.8 km) upstream from Cove Hollow.

DRAINAGE AREA.--257 mi^2 (666 km^2).

PERIOD OF RECORD.--September 1943 to current year.

REVISED RECORDS.--WSP 1333: 1944-47(M), 1948-49.

GAGE.--Water-stage recorder. Datum of gage is 1,174.47 ft (357.978 m) National Geodetic Vertical Datum of 1929. Prior to July 30, 1949, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, Oct. 9 to Nov. 17, Nov. 19 to Jan. 5, and Jan. 7-25, which are fair. Occasional diurnal fluctuation caused by meat-processing plant above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--38 years, 241 ft^3/s (6.825 m^3/s), 12.73 in/yr (323 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,500 ft^3/s (694 m^3/s) June 21, 1972, gage height, 15.60 ft (4.755 m), from floodmarks, from rating curve extended above 12,000 ft^3/s (340 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 10 ft^3/s (0.28 m^3/s) Jan. 14, 15, 18, 19, 1959.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 12.2 ft (3.72 m), from information by local residents, discharge, 19,000 ft^3/s (538 m^3/s), from rating curve extended above 12,000 ft^3/s (340 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,520 ft^3/s (43.0 m^3/s) June 7, gage height, 3.74 ft (1.140 m), no peak above base of 3,500 ft^3/s (99 m^3/s); minimum daily, 23 ft^3/s (0.65 m^3/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	93	59	80	72	34	83	243	90	207	66	41	42
2	66	58	75	68	226	79	194	85	176	71	39	44
3	54	56	72	56	137	74	155	73	154	68	38	45
4	52	60	70	46	83	74	131	63	149	71	37	71
5	54	75	72	42	75	130	128	60	177	65	35	96
6	79	70	68	41	76	137	152	60	190	63	36	61
7	63	64	63	39	69	117	120	60	904	78	38	71
8	56	57	62	38	68	104	116	64	392	59	80	63
9	55	54	85	38	57	96	114	61	256	52	64	50
10	54	60	80	40	63	89	116	61	192	48	47	43
11	54	57	86	44	263	84	98	86	155	47	42	39
12	54	54	80	47	164	80	86	93	124	55	40	35
13	52	54	78	47	125	77	98	72	110	50	41	35
14	51	53	75	50	109	73	91	67	98	45	39	34
15	53	54	74	52	92	69	141	91	85	44	39	34
16	54	58	72	60	84	67	119	86	77	69	40	50
17	56	65	71	56	85	67	122	73	71	104	38	52
18	75	96	66	65	92	66	148	74	67	62	37	41
19	115	110	59	60	97	66	118	145	66	52	36	37
20	90	79	48	61	143	63	207	242	63	48	35	35
21	68	73	42	62	136	62	258	228	59	45	32	32
22	62	70	47	62	118	62	212	180	55	42	30	32
23	62	71	55	61	117	74	188	143	51	39	28	32
24	63	98	68	58	130	98	157	118	48	41	27	30
25	130	70	70	54	111	154	135	101	49	52	25	30
26	105	94	62	52	100	162	119	89	71	106	24	30
27	90	92	58	52	91	150	106	93	53	57	24	28
28	80	87	72	54	85	138	87	885	47	52	24	28
29	75	83	71	50	---	119	91	720	45	56	23	27
30	66	82	80	47	---	176	90	396	47	47	30	27
31	64	---	77	37	---	306	---	269	---	42	47	---
TOTAL	2145	2113	2138	1611	3030	3196	4140	4928	4238	1796	1156	1274
MEAN	69.2	70.4	69.0	52.0	108	103	138	159	141	57.9	37.3	42.5
MAX	130	110	86	72	263	306	258	885	904	106	80	96
MIN	51	53	42	37	34	62	86	60	45	39	23	27
CFSM	.27	.27	.27	.20	.42	.40	.54	.62	.55	.23	.15	.17
IN.	.31	.31	.31	.23	.44	.46	.60	.71	.61	.26	.17	.18

CAL YR 1980 TOTAL 86092 MEAN 235 MAX 3890 MIN 42 CFSM .91 IN 12.46
WTR YR 1981 TOTAL 31765 MEAN 87.0 MAX 904 MIN 23 CFSM .34 IN 4.60

02055000 ROANOKE RIVER AT ROANOKE, VA

LOCATION.--Lat 37°15'30", long 79°56'20", Roanoke City, Hydrologic Unit 03010101, on left bank 50 ft (15 m) downstream from Walnut Street Bridge, 3.2 mi (5.1 km) upstream from Tinker Creek, and at mile 360.6 (580.2 km).

DRAINAGE AREA.--395 mi^2 (1,023 km^2).

PERIOD OF RECORD.--February 1899 to current year. Monthly discharge only for some periods, published in WSP 1303. Records for July 1896 to January 1899 published in WSP 11, 15, and 27, and 20th Annual Report, Part 4, are unreliable, due to doubtful gage-height record, and should not be used.

REVISED RECORDS.--WSP 972: 1928, 1930, 1933. WSP 1433: 1899-1904, 1914-17(M), 1918-24, 1925-27(M), 1929-34(M), 1935, 1936-39(M). WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1940(M). See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 906.84 ft (276.405 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to June 7, 1937, nonrecording gage on downstream side of highway bridge 50 ft (15 m) upstream at same datum.

REMARKS.--Records fair. Prior to 1949, diurnal fluctuation at low flow caused by powerplants above station. Appalachian Power Co. gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--82 years, 372 ft^3/s (10.54 m^3/s), 12.79 in/yr (325 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,300 ft^3/s (716 m^3/s) June 21, 1972, gage height, 19.61 ft (5.977 m), from floodmarks; practically no flow Dec. 23, 1909, Dec. 19, 1963, when flow was retarded by freezing, gage height, 0.0 ft (0.00 m); minimum daily discharge, 19 ft^3/s (0.54 m^3/s) Aug. 29, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,930 ft^3/s (83.0 m^3/s) at 0100 hours Sept. 4, gage height, 4.87 ft (1.484 m), no other peak above base of 2,500 ft^3/s (71 m^3/s); minimum, 12 ft^3/s (0.34 m^3/s) Jan. 5, result of freezeup; minimum daily, 19 ft^3/s (0.54 m^3/s) Aug. 29; minimum gage height, 0.12 ft (0.037 m) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	82	72	85	82	58	98	311	90	262	106	60	41
2	98	70	83	76	161	94	247	86	199	148	59	55
3	84	69	83	72	254	88	196	79	173	137	52	98
4	77	73	80	60	109	90	166	72	169	137	46	682
5	92	71	76	42	98	120	166	68	189	120	45	120
6	94	76	76	50	105	145	163	67	239	145	45	113
7	102	70	75	60	93	135	145	65	1370	127	45	94
8	94	67	74	66	89	120	135	62	771	115	130	92
9	92	73	94	68	81	113	135	60	486	92	108	84
10	90	76	91	60	85	104	135	60	359	82	82	70
11	92	65	99	45	256	100	127	102	282	75	63	62
12	86	66	89	49	303	96	120	98	228	72	54	59
13	82	64	83	62	151	90	115	84	196	68	45	55
14	80	63	80	62	145	88	132	73	173	73	45	48
15	80	70	77	63	122	84	139	86	151	63	41	46
16	80	76	75	64	104	80	145	84	132	115	39	77
17	79	102	73	60	98	80	145	72	120	120	34	70
18	96	108	73	69	108	75	154	70	111	115	33	70
19	122	111	70	73	125	79	142	132	106	104	29	60
20	123	94	71	66	145	77	169	189	108	96	32	54
21	87	82	66	73	166	73	274	199	100	72	28	51
22	73	77	55	74	142	75	206	163	90	67	28	46
23	68	77	65	74	139	127	169	132	82	59	27	46
24	68	110	71	72	139	115	151	113	77	72	26	42
25	164	100	73	69	127	145	137	98	88	72	23	42
26	127	103	51	69	118	169	120	86	88	102	22	45
27	111	103	63	70	106	166	108	122	98	106	20	46
28	92	98	75	74	100	160	98	923	79	106	20	46
29	82	95	74	73	---	142	90	1290	70	90	19	45
30	79	91	80	68	---	228	88	636	90	79	22	45
31	75	---	82	67	---	346	---	375	---	68	28	---
TOTAL	2851	2472	2362	2032	3727	3702	4628	5836	6686	3003	1350	2504
MEAN	92.0	82.4	76.2	65.5	133	119	154	188	223	96.9	43.5	83.5
MAX	164	111	99	82	303	346	311	1290	1370	148	130	682
MIN	68	63	51	42	58	73	88	60	70	59	19	41
CFSM	.23	.21	.19	.17	.34	.30	.39	.48	.57	.25	.11	.21
IN.	.27	.23	.22	.19	.35	.35	.44	.55	.63	.28	.13	.24

CAL YR 1980 TOTAL 129050 MEAN 353 MAX 5740 MIN 51 CFSM .89 IN 12.15
WTR YR 1981 TOTAL 41153 MEAN 113 MAX 1370 MIN 19 CFSM .29 IN 3.88

02055100 TINKER CREEK NEAR DALEVILLE, VA

LOCATION.--Lat 37°25'03", long 79°56'08", Botetourt County, Hydrologic Unit 03010101, on left bank 1,100 ft (335 m) downstream from Norfolk and Western Railway bridge, 0.2 mi (0.3 km) downstream from unnamed tributary, 0.5 mi (0.8 km) south of Glebe Mills, and 1.3 mi (2.1 km) northwest of Daleville.

DRAINAGE AREA.--11.7 mi^2 (30.3 km^2).

PERIOD OF RECORD.--April 1956 to current year.

REVISED RECORDS.--WSP 1904: 1958-60(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,217.47 ft (371.085 m) National Geodetic Vertical Datum of 1929 (Norfolk and Western Railway bench mark).

REMARKS.--Records fair except those for period of doubtful or no gage-height record, Oct. 9 to Nov. 17, which are poor. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--25 years, 11.6 ft^3/s (0.329 m^3/s), 13.46 in/yr (342 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,000 ft^3/s (113 m^3/s) June 21, 1972, gage height, 9.82 ft (2.993 m), from rating curve extended above 100 ft^3/s (2.8 m^3/s) on basis of contracted-opening measurement at gage height 9.82 ft (2.993 m) and slope-area measurements at gage heights 8.52 ft (2.597 m) and 9.82 ft (2.993 m); minimum, 0.20 ft^3/s (0.006 m^3/s) Jan. 24, 1961, result of freezeup; minimum daily, 0.90 ft^3/s (0.025 m^3/s) July 26, 1966; minimum gage height, 0.99 ft (0.302 m) June 12, 24, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1940 reached a stage of 9.0 ft (2.74 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 87 ft^3/s (2.46 m^3/s) July 5, gage height, 2.60 ft (0.792 m), no peak above base of 250 ft^3/s (7.1 m^3/s); minimum, 0.91 ft^3/s (0.026 m^3/s) Jan. 4, result of freezeup, and Sept. 28, 29, 30; minimum daily, 0.96 ft^3/s (0.027 m^3/s) Sept. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	2.6	3.2	2.4	4.2	3.5	3.9	2.4	4.3	4.9	2.1	2.4
2	3.2	2.5	3.0	2.3	6.0	3.3	3.4	2.3	4.8	4.6	2.1	2.4
3	3.3	2.6	2.9	2.0	3.0	3.2	3.3	2.2	6.3	3.7	2.1	2.8
4	3.3	3.0	2.8	1.4	2.7	3.3	3.2	2.1	11	7.0	2.1	8.5
5	3.8	2.8	2.7	1.6	2.9	4.4	4.4	1.9	13	18	2.0	3.3
6	3.8	2.7	2.6	1.9	3.2	3.7	3.7	1.9	11	29	2.2	2.4
7	3.5	2.5	2.6	2.2	2.8	3.3	3.3	1.9	22	14	2.4	2.4
8	3.4	2.4	2.5	2.1	2.7	3.1	3.3	1.7	9.7	9.5	3.7	2.1
9	3.3	2.5	3.7	1.9	2.4	3.0	3.4	1.7	7.0	6.4	2.5	1.8
10	3.1	2.8	3.6	1.8	3.0	2.9	3.3	1.9	5.5	4.9	2.2	1.6
11	3.2	2.5	3.2	1.5	8.6	2.8	3.2	3.0	4.7	4.3	2.0	1.5
12	3.1	2.4	3.0	1.8	5.0	2.6	3.1	2.1	4.2	3.8	2.1	1.4
13	2.9	2.3	2.9	2.0	3.8	2.7	3.8	1.8	3.9	3.4	1.9	1.4
14	2.9	2.4	2.8	2.0	3.6	2.6	3.4	1.7	3.6	3.3	1.8	1.3
15	2.8	2.5	2.7	2.1	3.5	2.5	3.4	1.9	3.2	3.0	1.8	1.4
16	2.8	2.6	2.6	1.9	3.1	2.7	3.0	1.7	3.0	3.4	2.1	1.9
17	2.9	3.0	2.5	2.1	3.0	2.4	3.7	1.5	2.8	3.2	1.8	1.5
18	3.5	4.0	2.5	2.4	3.5	2.6	3.5	1.6	2.7	2.9	1.7	1.3
19	4.5	2.9	2.4	2.0	4.0	2.8	3.1	2.9	2.7	3.6	1.7	1.3
20	4.3	2.6	2.4	2.2	4.6	2.6	3.8	3.0	3.0	4.0	1.9	1.3
21	4.0	2.1	2.2	2.8	4.0	2.5	3.2	2.3	2.6	3.0	1.7	1.2
22	3.0	2.1	2.0	2.5	3.7	2.8	3.1	1.9	2.6	2.7	1.7	1.2
23	2.5	2.2	2.3	2.3	4.6	3.8	3.0	1.8	2.4	2.5	1.7	1.1
24	2.4	3.6	3.0	2.2	4.2	3.7	2.9	1.7	2.4	3.2	1.7	1.1
25	7.0	2.7	2.1	2.1	3.7	3.5	2.7	1.5	2.3	2.8	1.8	1.1
26	5.2	2.2	2.0	2.2	3.5	3.0	2.6	1.4	2.3	2.7	1.8	1.1
27	4.5	2.4	2.1	2.4	3.3	2.9	2.5	4.9	2.3	2.4	1.8	1.0
28	3.5	2.7	2.4	2.3	3.3	2.7	2.4	28	2.2	2.5	1.8	.98
29	3.0	2.7	2.6	2.2	---	2.6	2.4	11	2.1	2.5	1.9	.96
30	2.9	3.4	2.8	2.1	---	5.8	2.4	6.1	5.7	2.3	2.0	1.0
31	2.7	---	2.7	1.9	---	4.8	---	4.7	---	2.2	2.1	---
TOTAL	107.5	79.7	82.8	64.6	105.9	98.1	96.4	106.5	155.3	165.7	62.2	54.74
MEAN	3.47	2.66	2.67	2.08	3.78	3.16	3.21	3.44	5.18	5.35	2.01	1.82
MAX	7.0	4.0	3.7	2.8	8.6	5.8	4.4	28	22	29	3.7	8.5
MIN	2.4	2.1	2.0	1.4	2.4	2.4	2.4	1.4	2.1	2.2	1.7	.96
CFSM	.30	.23	.23	.18	.32	.27	.27	.29	.44	.46	.17	.16
IN.	.34	.25	.26	.21	.34	.31	.31	.34	.49	.53	.20	.17

CAL YR 1980 TOTAL 4617.50 MEAN 12.6 MAX 452 MIN 2.0 CFSM 1.08 IN 14.68
WTR YR 1981 TOTAL 1179.44 MEAN 3.23 MAX 29 MIN .96 CFSM .28 IN 3.75

02056000 ROANOKE RIVER AT NIAGARA, VA

LOCATION.--Lat 37°15'18", long 79°52'18", Roanoke County, Hydrologic Unit 03010101, on right bank 200 ft (60 m) downstream from powerplant of Appalachian Power Co. at Niagara, 2 mi (3 km) downstream from Tinker Creek, 2.1 mi (3.4 km) southeast of Vinton, and at mile 355.3 (571.7 km).

DRAINAGE AREA.--512 mi^2 (1,326 km^2).

PERIOD OF RECORD.--July 1926 to current year.

REVISED RECORDS.--WSP 972: 1927(M), 1929(M), 1934(M), 1937(M). WSP 1303: 1928, 1930, 1933-38, 1940. WSP 2104: Drainage area. WDR VA-72-1: 1928(M), 1930(M), 1933(M), 1935-36(M), 1938(M), 1940, 1944-45(M), 1948-49(M), 1951(M), 1955(M), 1960(M), 1967(M), 1969(M).

GAGE.--Water-stage recorder. Datum of gage is 820.15 ft (249.982 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Flow regulated by dam and powerplant 200 ft (60 m) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--55 years, 511 ft^3/s (14.47 m^3/s), 13.55 in/yr (344 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,300 ft^3/s (830 m^3/s) Apr. 27, 1978, gage height, 19.12 ft (5.828 m), from rating curve extended above 12,000 ft^3/s (340 m^3/s) on basis of slope-area measurement at gage height 18.98 ft (5.785 m); minimum, 1.0 ft^3/s (0.028 m^3/s) Oct. 16, 20, 1956; minimum daily, 8 ft^3/s (0.23 m^3/s) Oct. 9, 1954; minimum gage height, 0.17 ft (0.052 m) Aug. 25, 1971.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,150 ft^3/s (118 m^3/s) at 0230 hours Sept. 4, gage height, 8.28 ft (2.524 m), no other peak above base of 3,500 ft^3/s (99 m^3/s); minimum, 11 ft^3/s (0.31 m^3/s) Mar. 25, gage height, 0.46 ft (0.140 m); minimum daily, 35 ft^3/s (0.99 m^3/s) Aug. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	170	131	235	156	113	181	436	172	410	182	109	99
2	187	138	149	170	248	148	372	199	397	224	106	180
3	165	164	161	116	341	179	317	194	335	211	109	106
4	131	165	184	139	223	187	301	170	310	184	106	1230
5	177	148	129	121	163	209	249	159	377	173	104	225
6	173	163	190	143	169	249	294	165	398	236	106	165
7	187	165	115	114	189	247	236	161	1600	192	80	177
8	150	113	188	138	130	204	264	135	904	200	282	171
9	161	148	188	165	191	187	264	161	605	169	145	118
10	141	206	155	119	127	214	231	163	420	121	120	109
11	153	164	176	94	379	153	221	248	346	113	104	165
12	135	113	184	137	442	210	153	191	270	107	115	103
13	142	184	132	146	258	137	208	164	246	160	124	99
14	130	113	185	112	235	202	244	183	246	116	84	102
15	144	165	123	122	228	118	250	229	191	108	97	99
16	130	162	173	136	210	201	252	149	189	222	97	181
17	131	188	149	157	171	131	261	188	187	162	100	124
18	170	237	118	98	197	144	261	163	157	133	96	125
19	213	174	158	123	213	190	248	355	162	202	92	102
20	161	191	149	171	229	127	307	362	208	187	95	97
21	193	160	156	118	288	133	388	352	141	114	94	97
22	146	186	105	175	227	178	363	280	136	109	93	93
23	145	144	134	123	222	192	362	298	137	105	92	123
24	165	236	174	149	225	282	329	214	134	156	98	107
25	295	200	111	143	237	191	290	206	118	131	84	106
26	253	141	122	118	193	322	224	199	181	110	91	101
27	199	183	163	149	212	278	223	269	170	172	96	92
28	185	190	127	158	208	268	232	1270	143	170	79	82
29	186	175	141	118	---	196	205	1500	90	185	95	96
30	144	167	189	126	---	375	218	824	140	166	35	94
31	190	---	127	167	---	468	---	583	---	123	94	---
TOTAL	5252	5014	4790	4221	6268	6501	8203	9906	9348	4943	3222	4768
MEAN	169	167	155	136	224	210	273	320	312	159	104	159
MAX	295	237	235	175	442	468	436	1500	1600	236	282	1230
MIN	130	113	105	94	113	118	153	135	90	105	35	82
CFSM	.33	.33	.30	.27	.44	.41	.53	.63	.61	.31	.20	.31
IN.	.38	.36	.35	.31	.46	.47	.60	.72	.68	.36	.23	.35

CAL YR 1980 TOTAL 189485 MEAN 518 MAX 9490 MIN 52 CFSM 1.01 IN 13.77
WTR YR 1981 TOTAL 72436 MEAN 198 MAX 1600 MIN 35 CFSM .39 IN 5.26

02056650 BACK CREEK NEAR DUNDEE, VA

LOCATION.--Lat 37°13'40", long 79°52'06", Roanoke County, Hydrologic Unit 03010101, on right bank at upstream side of bridge on State Highway 660, 0.9 mi (1.4 km) upstream from Horseshoe Branch, 1.1 mi (1.8 km) southeast of Dundee, 2.8 mi (4.5 km) west of Hardy Post Office, and at mile 2.4 (3.9 km).

DRAINAGE AREA.--56.8 mi² (147.1 km²).

PERIOD OF RECORD.--July 1974 to current year.

GAGE.--Water-stage recorder. Datum of gage is 822.67 ft (250.750 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 4, 1975, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Oct. 8 to Nov. 18 and Jan. 12 to Feb. 18, which are fair. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--7 years, 62.0 ft³/s (1.756 m³/s), 14.82 in/yr (376 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,500 ft³/s (212 m³/s) May 29, 1976, gage height, 15.00 ft (4.572 m), from floodmarks; minimum daily, 0.90 ft³/s (0.025 m³/s) Aug. 30, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of May 30, 1971, and June 21, 1972, reached a stage of 17.5 ft (5.33 m) and 20.0 ft (6.10 m), respectively, from information by local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 600 ft³/s (17 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 7	0330	*840	23.8	5.18	1.579	Sept. 4	0415	694	19.7	4.74	1.445

Minimum daily discharge, 0.90 ft³/s (0.025 m³/s) Aug. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	13	17	15	12	16	40	16	25	8.0	4.5	1.2
2	15	12	16	14	10	16	33	15	23	10	4.0	2.9
3	11	12	16	13	30	15	26	13	20	9.5	3.8	2.3
4	9.5	14	15	11	50	15	24	13	17	9.0	3.5	190
5	8.4	18	15	9.0	20	26	24	13	18	8.0	3.3	35
6	22	14	15	8.0	18	25	28	12	21	10	3.2	15
7	15	13	15	9.0	19	20	22	12	247	9.0	3.5	13
8	11	12	14	11	17	18	20	12	77	8.0	18	12
9	10	12	14	12	15	17	20	11	47	6.2	12	9.0
10	9.5	13	17	11	20	16	20	11	33	5.4	6.1	7.0
11	9.1	14	17	9.0	45	16	19	18	25	5.0	4.5	5.7
12	9.0	12	15	8.0	60	15	18	21	20	4.8	4.0	5.0
13	8.8	11	15	9.0	30	15	17	14	18	4.5	3.5	4.3
14	8.6	11	14	10	25	14	19	13	16	4.8	3.1	4.5
15	8.4	11	14	11	22	14	30	16	14	4.2	2.9	3.8
16	8.2	12	14	12	19	14	24	16	12	8.0	2.6	7.9
17	8.0	15	14	11	18	13	22	13	11	8.5	2.5	10
18	7.5	32	13	11	17	13	23	12	9.3	7.8	2.3	6.7
19	19	27	13	12	19	13	20	18	9.3	7.4	2.1	5.2
20	30	17	13	13	30	13	26	29	9.0	6.5	2.1	4.5
21	20	15	16	12	26	13	29	25	7.7	5.5	2.0	3.8
22	14	15	12	13	23	13	24	20	6.7	4.7	2.0	3.6
23	13	15	10	14	23	17	23	17	6.3	4.3	2.0	3.3
24	12	20	11	13	26	29	22	15	5.0	4.9	1.8	2.9
25	35	28	13	13	22	39	19	14	6.0	7.0	1.6	2.9
26	25	22	12	12	20	33	18	13	6.4	7.4	1.4	2.9
27	21	18	9.0	12	18	28	17	14	7.0	5.9	1.3	2.9
28	18	24	11	13	17	26	16	86	5.0	4.7	1.1	2.7
29	15	23	13	14	---	23	15	68	4.5	14	.95	2.6
30	14	18	13	13	---	34	14	44	6.0	7.9	.90	2.5
31	13	---	14	12	---	57	---	31	---	5.0	1.0	---
TOTAL	467.1	493	430.0	360.0	671	636	672	645	732.2	215.9	107.55	375.1
MEAN	15.1	16.4	13.9	11.6	24.0	20.5	22.4	20.8	24.4	6.96	3.47	12.5
MAX	39	32	17	15	60	57	40	86	247	14	18	190
MIN	7.5	11	9.0	8.0	10	13	14	11	4.5	4.2	.90	1.2
CFSM	.27	.29	.25	.20	.42	.36	.39	.37	.43	.12	.06	.22
IN.	.31	.32	.28	.24	.44	.42	.44	.42	.48	.14	.07	.25

CAL YR 1980 TOTAL 22289.20 MEAN 60.9 MAX 1500 MIN 5.9 CFSM 1.07 IN 14.60
WTR YR 1981 TOTAL 5804.85 MEAN 15.9 MAX 247 MIN .90 CFSM .28 IN 3.80

02056900 BLACKWATER RIVER NEAR ROCKY MOUNT, VA

LOCATION.--Lat 37°02'42", long 79°50'40" (revised), Franklin County, Hydrologic Unit 03010101, on right bank 45 ft (14 m) downstream from bridge on State Highway 122, 3.0 mi (4.8 km) northeast of Rocky Mount, and 4.1 mi (6.6 km) upstream from Maggodee Creek.

DRAINAGE AREA.--115 mi² (298 km²).

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 876.45 ft (267.142 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Appalachian Power Company gage-height telemeter at station. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--5 years, 140 ft³/s (3.965 m³/s), 16.53 in/yr (420 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,130 ft³/s (230 m³/s) Sept. 22, 1979, gage height, 16.38 ft (4.993 m); minimum, 7.2 ft³/s (0.20 m³/s) Aug. 28, 1981, gage height, 1.16 ft (0.354 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 242 ft³/s (6.85 m³/s) Feb. 11, gage height, 2.95 ft (0.899 m), no peak above base of 1,500 ft³/s (42 m³/s); minimum, 7.2 ft³/s (0.20 m³/s) Aug. 28, gage height, 1.16 ft (0.354 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	83	45	54	50	5[illegible]	58	92	51	67	21	13	15
2	52	43	51	47	114	57	79	47	62	27	12	12
3	42	43	50	45	117	55	70	43	58	30	12	13
4	36	52	49	43	64	54	66	41	54	45	12	84
5	38	78	49	39	58	77	67	40	48	54	11	96
6	66	54	48	36	50	74	74	40	48	99	10	41
7	54	47	49	35	47	64	66	40	99	49	10	31
8	44	46	48	35	44	58	61	39	73	33	20	29
9	40	45	50	36	42	57	61	36	56	28	46	25
10	39	44	57	37	41	55	63	37	47	24	23	22
11	39	42	57	39	140	54	58	45	42	22	17	20
12	38	41	52	41	143	52	56	56	38	20	15	18
13	36	40	51	45	93	50	56	41	36	20	14	17
14	35	40	50	47	80	48	58	37	35	21	13	16
15	36	42	49	48	70	47	72	39	31	19	12	18
16	36	44	48	49	66	46	66	46	28	27	11	61
17	36	47	48	50	64	46	62	37	27	55	10	69
18	37	67	48	51	64	45	68	36	25	30	9.6	36
19	56	61	48	61	64	47	60	51	25	23	9.2	25
20	56	50	47	58	88	47	79	84	26	21	10	21
21	43	46	45	64	83	46	94	74	25	20	10	19
22	41	44	50	69	72	46	74	56	23	17	10	18
23	40	44	58	61	72	60	69	47	21	15	9.6	17
24	40	55	56	57	79	79	67	42	20	14	9.2	16
25	72	87	52	50	70	82	61	37	21	16	8.4	15
26	83	62	46	44	64	72	57	36	28	23	8.0	14
27	56	56	53	46	62	66	55	36	26	21	7.6	14
28	50	69	58	46	60	61	51	141	20	19	7.4	14
29	49	64	60	45	---	58	49	140	18	18	7.4	13
30	48	55	55	44	---	70	49	93	20	16	7.6	12
31	47	---	54	40	---	133	---	74	---	14	8.4	---
TOTAL	1468	1553	1590	1458	2067	1864	1960	1662	1147	861	383.4	821
MEAN	47.4	51.8	51.3	47.0	73.8	60.1	65.3	53.6	38.2	27.8	12.4	27.4
MAX	83	87	60	69	143	133	94	141	99	99	46	96
MIN	35	40	45	35	41	45	49	36	18	14	7.4	12
CFSM	.41	.45	.45	.41	.64	.52	.57	.47	.33	.24	.11	.24
IN.	.47	.50	.51	.47	.67	.60	.63	.54	.37	.28	.12	.27

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CAL YR 1980   TOTAL   47170.0   MEAN  129    MAX  2940   MIN 25    CFSM 1.12   IN 15.26
WTR YR 1981   TOTAL   16834.4   MEAN   46.1  MAX   143   MIN  7.4  CFSM  .40   IN  5.45
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02057400 SMITH MOUNTAIN LAKE NEAR PENHOOK, VA

LOCATION.--Lat 37°02'28", long 79°32'09", Pittsylvania County, Hydrologic Unit 03010101, at dam on Roanoke (Staunton) River 6.5 mi (10.5 km) northeast of Penhook and at mile 314.0 (505.2 km).

DRAINAGE AREA.--1,024 mi² (2,652 km²).

PERIOD OF RECORD.--September 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to July 19, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete dam. Two ungated spillways, one near each end of dam, with crests at elevation 795 ft (242.3 m) are each 105 ft (32.0 m) long. Initial filling began in September 1963 during construction; water in reservoir first reached minimum power pool, elevation, 787 ft (239.9 m), in May 1965. Total capacity at maximum pool elevation, 811 ft (247.2 m), is 1,517,000 acre-ft (1.87 km³) of which 375,000 acre-ft (462 hm³) is above the spillway crest; 157,800 acre-ft (195 hm³) is normally used for power between elevation 787 ft (239.9 m), minimum power pool, and the spillway crest. Capacity at invert of lowest penstock, elevation, 601 ft (183.2 m), is 100 acre-ft (123,000 m³). Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (pumped storage) which is used for hydroelectric power, flood control, low-water regulation for pollution abatement and water supply, water releases for downstream fish spawning, and recreation.

COOPERATION.--Records furnished by Appalachian Power Company.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,250,200 acre-ft (1.54 km³) Apr. 27, 1978, elevation, 799.8 ft (243.78 m); minimum (after first filling to minimum power pool), 995,400 acre-ft (1.23 km³) Jan. 23, 1970, elevation, 787.6 ft (240.06 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,125,700 acre-ft (1.39 km³) June 13, elevation, 794.2 ft (242.07 m); minimum, 1,017,700 acre-ft (1.25 km³) Jan. 8, elevation, 788.8 ft (240.43 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	791.7	1074700	
Oct. 31	789.9	1038100	-36600
Nov. 30	791.4	1068600	+30500
Dec. 31	790.5	1050200	-18400
CAL YR 1980			-67300
Jan. 31	789.4	1028800	-21400
Feb. 28	790.6	1052200	+23400
Mar. 31	792.6	1093000	+40800
Apr. 30	793.2	1105300	+12300
May 31	792.7	1095100	-10200
June 30	792.5	1091000	-4100
July 31	792.8	1097100	+6100
Aug. 31	792.4	1089000	-8100
Sept. 30	792.7	1095100	+6100
WTR YR 1981			+20400

02058400 PIGG RIVER NEAR SANDY LEVEL, VA

LOCATION.--Lat 36°56'45", long 79°31'30", Pittsylvania County, Hydrologic Unit 03010101, on left bank 300 ft (90 m) downstream from Harpen Creek, 0.5 mi (0.8 km) upstream from bridge on State Highway 40, and 1.1 mi (1.8 km) south of Sandy Level.

DRAINAGE AREA.--350 mi^2 (906 km^2).

PERIOD OF RECORD.--May 1963 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 617.00 ft (188.062 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Nov. 18, 1963, nonrecording gage at same site and datum.

REMARKS.--Records good. Appalachian Power Company gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--18 years, 369 ft^3/s (10.45 m^3/s), 14.32 in/yr (364 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,400 ft^3/s (719 m^3/s) Apr. 27, 1978, gage height, 25.56 ft (7.791 m), from rating curve extended above 12,000 ft^3/s (340 m^3/s) on basis of slope-area measurement of peak flow; minimum, 24 ft^3/s (0.68 m^3/s) Aug. 29, 30, 1981, gage height, 1.95 ft (0.594 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 648 ft^3/s (18.4 m^3/s) Feb. 11, gage height, 3.59 ft (1.094 m), no peak above base of 4,000 ft^3/s (110 m^3/s); minimum, 24 ft^3/s (0.68 m^3/s) Aug. 29, 30, gage height, 1.95 ft (0.594 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198	154	178	172	124	194	321	191	161	50	54	85
2	182	145	174	163	274	188	254	177	165	62	51	52
3	147	138	168	157	365	179	219	157	185	106	51	43
4	155	158	164	148	208	177	200	153	162	141	54	163
5	136	193	159	133	204	256	205	147	156	158	51	339
6	152	181	162	157	246	269	230	142	156	176	48	170
7	183	159	161	181	236	223	206	146	263	384	51	115
8	144	157	159	148	208	200	186	143	196	168	60	99
9	132	151	161	150	170	189	202	134	149	113	97	91
10	128	146	172	162	177	183	238	134	126	93	121	80
11	129	144	172	128	436	179	213	151	118	82	79	71
12	122	142	164	132	544	176	197	159	110	76	65	66
13	115	140	160	139	297	170	189	141	108	74	66	62
14	115	144	159	157	251	166	187	127	105	75	56	59
15	116	152	156	164	235	160	211	129	103	78	50	61
16	117	156	158	157	217	160	205	138	99	88	47	171
17	120	163	158	147	207	157	194	127	94	134	43	301
18	122	261	154	142	202	157	212	121	89	112	41	182
19	130	251	154	158	255	156	197	165	90	91	39	114
20	154	192	153	163	529	154	248	291	90	80	39	88
21	138	170	127	176	361	157	346	280	88	76	38	79
22	123	162	137	209	270	153	264	201	86	72	38	75
23	125	160	176	199	253	201	225	159	79	66	35	70
24	127	210	167	182	264	283	273	138	71	73	34	66
25	173	344	151	173	238	278	236	127	66	82	32	62
26	264	244	156	176	214	247	204	117	65	109	30	62
27	181	203	169	172	199	214	187	117	66	95	29	62
28	154	229	177	164	192	196	180	250	57	80	27	58
29	150	222	193	158	---	184	170	290	53	71	25	56
30	154	194	186	154	---	242	170	209	50	68	29	53
31	157	---	184	136	---	442	---	160	---	59	47	---
TOTAL	4543	5465	5069	4957	7376	6290	6569	5121	3406	3192	1527	3055
MEAN	147	182	164	160	263	203	219	165	114	103	49.3	102
MAX	264	344	193	209	544	442	346	291	263	384	121	339
MIN	115	138	127	128	124	153	170	117	50	50	25	43
CFSM	.42	.52	.47	.46	.75	.58	.63	.47	.33	.29	.14	.29
IN.	.48	.58	.54	.53	.78	.67	.70	.54	.36	.34	.16	.32

CAL YR 1980 TOTAL 123606 MEAN 338 MAX 5620 MIN 89 CFSM .97 IN 13.14
WTR YR 1981 TOTAL 56570 MEAN 155 MAX 544 MIN 25 CFSM .44 IN 6.01

02059400 LEESVILLE LAKE NEAR LEESVILLE, VA

LOCATION.--Lat 37°05'35", long 79°24'09", Campbell County, Hydrologic Unit 03010101, at Leesville Dam on Roanoke (Staunton) River, 2.0 mi (3.2 km) south of Leesville, 3.5 mi (5.6 km) upstream from Goose Creek, and at mile 296 (476 km).

DRAINAGE AREA.--1,505 mi^2 (3,898 km^2).

PERIOD OF RECORD.--September 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to June 6, 1963, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete dam. Spillway, with crest at elevation 578.0 ft (176.17 m), is equipped with 4 radial gates 35 ft (11 m) high by 50 ft (15 m) wide. Storage began on Sept. 29, 1962, during construction, and water in reservoir first reached minimum power pool, elevation, 600.0 ft (182.88 m), on Mar. 5, 1963. Total capacity at maximum pool elevation, 613 ft (186.8 m), is 94,960 acre-ft (117 hm^3) of which 75,960 acre-ft (93.7 hm^3) is above the spillway crest; 38,200 acre-ft (47.1 hm^3) is normally used for power between elevations 600.0 ft (182.88 m), minimum power pool, and the spillway crest. Capacity at invert of lowest penstock, elevation, 579.75 ft (176.708 m), is 21,010 acre-ft (25.9 hm^3). Figures given herein represent total contents. Reservoir is part of the Smith Mountain Combination Project (see station 02057400).

COOPERATION.--Records furnished by Appalachian Power Company.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 98,180 acre-ft (121 hm^3) Feb. 1, 1965, elevation, 614.0 ft (187.15 m); minimum (after first filling to minimum power pool), 39,880 acre-ft (49.2 hm^3) Mar. 19, 1963, elevation, 592.0 ft (180.44 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 95,280 acre-ft (117 hm^3) May 30, elevation, 613.1 ft (186.87 m); minimum, 56,970 acre-ft (70.2 hm^3) Jan. 18, 19, elevation, 599.9 ft (182.85 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	607.4	77660	
Oct. 31	612.3	92710	+15050
Nov. 30	601.2	60420	-32290
Dec. 31	600.2	57740	-2680
CAL YR 1980			-20800
Jan. 31	602.9	64970	+7230
Feb. 28	605.2	71190	+6220
Mar. 31	600.7	59080	-12110
Apr. 30	603.0	65240	+6160
May 31	602.3	63360	-1880
June 30	608.9	82070	+18710
July 31	607.7	78540	-3530
Aug. 31	604.9	70330	-8210
Sept. 30	601.0	59880	-10450
WTR YR 1981			-17780

02059500 GOOSE CREEK NEAR HUDDLESTON, VA

LOCATION.--Lat 37°10'23", long 79°31'14", Bedford County, Hydrologic Unit 03010101, on left bank 0.3 mi (0.5 km) upstream from Haden Bridge on State Highway 732, 0.4 mi (0.6 km) upstream from Rockcastle Creek, and 3.5 mi (5.6 km) northwest of Huddleston.

DRAINAGE AREA.--188 mi^2 (487 km^2).

PERIOD OF RECORD.--March 1925 to August 1928 (gage heights only), September 1930 to current year.

REVISED RECORDS.--WSP 892: 1933, 1935(M), 1939. WSP 972: 1931-32(M), 1934(M), 1935-38, 1940, 1941(M). WSP 1082: 1940(P). WSP 1142: 1938-40(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 592.91 ft (180.719 m) National Geodetic Vertical Datum of 1929. Mar. 15, 1925, to Aug. 4, 1928, nonrecording gage at site 1,300 ft (396 m) downstream at different datum.

REMARKS.--Records good. Prior to October 1954, diurnal fluctuation at low flow caused by mill above station. Appalachian Power Company gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--51 years, 176 ft^3/s (4.984 m^3/s), 12.71 in/yr (323 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,300 ft^3/s (575 m^3/s) Oct. 19, 1937, gage height, 25.75 ft (7.849 m), from floodmarks, from rating curve extended above 11,000 ft^3/s (310 m^3/s) on basis of slope-area measurements at gage heights 19.25 ft (5.867 m), 24.1 ft (7.35 m), and 24.89 ft (7.586 m); minimum, 3 ft^3/s (0.085 m^3/s) Aug. 31, 1932, Jan. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,560 ft^3/s (44.2 m^3/s) June 7, gage height, 5.80 ft (1.768 m), no peak above base of 2,300 ft^3/s (65 m^3/s); minimum, 22 ft^3/s (0.62 m^3/s) Aug. 29, 30, gage height, 1.03 ft (0.314 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	58	66	66	45	82	129	70	106	30	30	27
2	60	57	65	65	112	80	115	65	119	57	29	35
3	55	57	65	65	106	76	104	57	92	90	30	56
4	52	75	63	60	65	75	99	57	71	166	29	79
5	57	87	65	55	63	97	102	54	83	160	28	106
6	83	66	65	54	62	94	123	54	174	106	26	57
7	68	60	65	52	60	82	95	55	693	118	48	51
8	58	60	65	49	60	76	90	49	172	81	270	48
9	57	60	66	49	62	75	92	46	110	60	137	41
10	55	60	92	48	65	73	99	49	79	83	48	36
11	55	60	76	46	154	73	88	57	68	75	41	34
12	52	57	68	44	136	73	87	58	59	49	49	31
13	48	57	68	46	104	71	102	46	54	44	40	30
14	48	57	66	49	97	68	104	45	51	42	35	29
15	49	60	65	55	90	66	113	54	48	40	33	30
16	51	63	63	58	88	68	100	54	44	44	33	54
17	49	68	63	62	82	66	100	44	41	49	33	56
18	51	102	62	57	82	66	115	44	39	40	30	37
19	73	85	63	58	94	68	104	63	40	37	29	33
20	65	68	62	60	180	66	104	82	78	45	29	29
21	52	66	55	68	132	65	102	65	67	39	29	29
22	52	63	64	70	108	65	92	52	48	34	27	29
23	52	62	68	68	104	82	90	46	39	31	26	28
24	52	80	66	70	108	106	90	44	36	37	26	27
25	73	99	62	68	97	99	82	41	35	39	25	26
26	88	76	60	64	90	92	78	38	37	40	24	26
27	63	71	66	63	87	87	73	39	31	36	24	27
28	60	83	70	60	83	83	71	97	29	33	24	26
29	62	80	73	58	---	80	66	102	29	54	23	25
30	60	70	73	55	---	94	66	75	28	40	25	24
31	60	---	75	52	---	136	---	60	---	31	27	---
TOTAL	1830	2067	2065	1794	2616	2484	2875	1762	2600	1830	1307	1166
MEAN	59.0	68.9	66.6	57.9	93.4	80.1	95.8	56.8	86.7	59.0	42.2	38.9
MAX	88	102	92	70	180	136	129	102	693	166	270	106
MIN	48	57	55	44	45	65	66	38	28	30	23	24
CFSM	.31	.37	.35	.31	.50	.43	.51	.30	.46	.31	.22	.21
IN.	.36	.41	.41	.35	.52	.49	.57	.35	.51	.36	.26	.23

CAL YR 1980 TOTAL 71584 MEAN 196 MAX 2910 MIN 39 CFSM 1.04 IN 14.16
WTR YR 1981 TOTAL 24396 MEAN 66.8 MAX 693 MIN 23 CFSM .36 IN 4.83

02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA

LOCATION.--Lat 37°06'16", long 79°17'44", Pittsylvania County, Hydrologic Unit 03010101, on right bank 12 ft (4 m) upstream from bridge on alternate U.S. Highway 29, 0.3 mi (0.5 km) south of Altavista, 0.3 mi (0.5 km) downstream from Sycamore Creek, 3.5 mi (5.6 km) upstream from Big Otter River, and at mile 286.5 (461.0 km).

DRAINAGE AREA.--1,789 mi^2 (4,634 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1930 to current year.

REVISED RECORDS.--WSP 892: 1938(M). WSP 972: 1931-33. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 503.10 ft (153.345 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1951, on left bank 50 ft (15 m) downstream at same datum.

REMARKS.--Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 9.5 mi (15.3 km) upstream and since 1963 by Smith Mountain Lake (station 02057400) 27.5 mi (44.2 km) upstream. Corps of Engineers satellite and gage-height telemeters at station. Appalachian Power Company gage-height telemeter at station.

AVERAGE DISCHARGE.--51 years, 1,796 ft^3/s (50.86 m^3/s), 13.63 in/yr (346 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 105,000 ft^3/s (2,970 m^3/s) Aug. 15, 1940, gage height, 40.08 ft (12.216 m), from floodmark, from rating curve extended above 52,000 ft^3/s (1,500 m^3/s) on basis of unit hydrograph and flood-routing studies by Corps of Engineers and records for other stations in Roanoke River basin; minimum, 13 ft^3/s (0.37 m^3/s) Jan. 30, 1966; minimum daily, 39 ft^3/s (1.10 m^3/s) July 10, 1966; minimum gage height, 1.53 ft (0.466 m) Jan. 2, 1977, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,150 ft^3/s (146 m^3/s) Nov. 25, gage height, 8.00 ft (2.438 m); minimum, 94 ft^3/s (2.66 m^3/s) June 18, gage height, 1.68 ft (0.512 m); minimum daily, 128 ft^3/s (3.62 m^3/s) June 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	187	150	295	131	209	460	1080	719	383	469	495
2	935	170	707	902	883	397	440	974	803	397	479	495
3	1010	896	1340	220	1350	383	397	1070	713	469	460	515
4	209	948	1370	198	1340	379	202	1100	628	568	484	546
5	195	967	1490	1560	1290	430	209	1100	725	622	474	617
6	935	1140	351	1270	479	445	460	1080	205	525	435	546
7	896	1320	177	1390	198	205	425	1030	1470	546	573	595
8	1090	191	754	678	224	235	421	980	809	495	1110	525
9	902	177	737	213	600	402	392	1030	644	455	742	505
10	1280	922	1190	228	546	374	379	1090	546	440	525	495
11	209	1010	1350	287	821	402	209	993	617	678	490	479
12	184	941	1290	821	628	425	205	941	435	541	546	474
13	967	935	184	1140	578	195	421	974	144	500	557	469
14	961	1310	177	1350	259	239	450	1010	128	531	469	479
15	980	187	766	858	247	216	430	1040	474	479	515	510
16	967	180	772	754	505	397	416	1090	500	500	479	562
17	1150	1010	909	231	484	356	402	1210	464	525	464	573
18	191	1090	1550	247	495	365	251	1190	474	515	490	520
19	220	1050	784	562	650	402	864	1120	170	500	450	464
20	1000	1160	455	1170	1030	243	1090	1070	464	500	469	484
21	987	1130	174	1140	421	243	1100	961	205	500	484	460
22	1010	195	673	1350	316	239	1180	954	474	479	445	450
23	1190	184	1370	922	573	379	1140	1020	354	479	469	440
24	1140	287	1780	157	541	430	1010	1070	445	495	469	495
25	235	2130	247	174	531	421	928	1070	469	500	464	490
26	308	2310	1060	737	520	402	1030	1040	402	484	464	479
27	928	243	195	1130	402	291	1060	803	195	500	469	510
28	864	568	287	1320	216	243	993	701	187	484	455	479
29	967	195	1190	633	---	231	980	562	360	515	474	460
30	1170	167	1400	1160	---	416	1030	505	374	557	464	464
31	1320	---	1340	184	---	469	---	474	---	469	479	---
TOTAL	25610	23200	26219	23281	16258	10463	18974	30332	14597	15631	15816	15075
MEAN	826	773	846	751	581	338	632	978	487	504	510	503
MAX	1320	2310	1780	1560	1350	469	1180	1210	1470	678	1110	617
MIN	184	167	150	157	131	195	202	474	128	383	435	440
(*)	-350	-30	-343	-230	+533	+467	+311	-197	+245	+42	-266	-73
MEAN‡	476	743	503	521	1114	805	943	781	732	546	244	430
CFSM‡	.27	.42	.28	.29	.62	.45	.53	.44	.41	.31	.14	.24
IN‡	.31	.46	.32	.34	.65	.52	.59	.50	.46	.35	.16	.27

CAL YR 1980 TOTAL 576760 MEAN 1576 MAX 12400 MIN 140 MEAN‡ 1454 CFSM‡ .81 IN‡ 11.07
WTR YR 1981 TOTAL 235456 MEAN 645 MAX 2310 MIN 128 MEAN‡ 648 CFSM‡ .36 IN‡ 4.92

* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; furnished by Appalachian Power Co.

‡ Adjusted for change in contents.

02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951, 1953-56, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1950 to September 1951, February 1953 to September 1956, April 1968 to current year.
WATER TEMPERATURES: October 1950 to September 1951, February 1953 to September 1956, April 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: February 1953 to September 1956.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 580 micromhos Jan. 17, 1969; minimum daily, 54 micromhos Aug. 18, 1955.
WATER TEMPERATURES: Maximum daily, 30.0°C Aug. 10, 1951, Aug. 11, 1980; minimum daily, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
OCT 09...	1000	172	161	6.7	17.0	5	61	1	15	5.8	6.5	2.0
DEC 04...	1030	1130	152	7.9	7.0	3	59	12	14	5.8	5.6	2.0
JAN 14...	1200	181	153	6.9	2.0	5	54	7	13	5.3	8.2	1.8
FEB 26...	1115	200	162	7.1	6.5	10	41	4	9.7	4.1	12	1.9
APR 23...	0930	1010	135	7.4	14.0	<5	53	2	13	5.1	4.7	1.8
JUN 11...	1100	169	165	7.8	21.5	4	61	10	15	5.6	7.4	2.2
JUL 30...	1115	294	214	7.7	21.5	10	64	0	15	6.5	19	2.4
SEP 24...	1120	252	180	7.6	17.5	<1	68	9	16	6.9	6.0	2.0

< Actual value is known to be less than the value shown.

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)
OCT 09...	60	10	7.1	.2	7.7	85	90	--	--	--	20
DEC 04...	47	8.5	6.0	.1	7.4	85	78	.010	.25	<.010	10
JAN 14...	47	9.7	7.3	.1	7.9	95	82	--	--	--	10
FEB 26...	37	12	8.3	<.1	11	96	81	<.010	.25	<.010	130
APR 23...	51	9.2	5.2	.2	7.0	72	77	<.010	.24	.010	<10
JUN 11...	51	12	7.2	.2	7.9	96	88	<.010	.27	<.010	20
JUL 30...	68	15	13	.2	5.6	123	118	<.010	.21	.020	20
SEP 24...	59	12	7.6	.1	4.8	107	91	<.010	.19	<.010	<10

< Actual value is known to be less than the value shown.

02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131	---	150	---	115	---	126		---			---
2	163	---	135	---	120	118	126		---			---
3	164	123	127	---	120	118	126		---			---
4	---	163	125	---	125	110	---		---			---
5	---	140	125	---	105	118	---		---			---
6	164	125	---	---	118	125	---		---			---
7	164	135	---	---	105	---	126		---			---
8	166	145	130	---	105	---	126		---			---
9	164	142	145	---	---	126	127		---			---
10	165	155	140	---	---	126	---		---			---
11	---	140	120	---	---	118	---		165			---
12	---	150	120	---	---	126	---		---			---
13	166	153	---	---	---	126	---		---			---
14	160	155	---	---	---	---	130		---			---
15	155	---	140	---	---	---	127		---			---
16	145	---	125	140	115	127	127		---			---
17	140	160	135	---	125	127	130		---			---
18	---	153	130	---	110	125	---		---			---
19	---	133	138	110	123	125	---		---			---
20	130	150	---	120	120	147	130		---			---
21	---	150	---	123	---	---	131		---			---
22	150	---	---	138	---	---	128		---			---
23	140	---	---	118	120	123	131		---			---
24	150	145	---	---	120	123	127		---			180
25	---	122	---	---	123	123	---		---			---
26	160	130	---	118	120	128	---		---			---
27	---	120	---	120	123	---	130		---			---
28	150	142	---	120	---	---	129		---			---
29	143	---	---	120	---	---	129		---			---
30	150	---	---	128	---	127	129		---			---
31	150	---	---	135	---	130	---		---			---
MEAN	153	142	132	124	117	125	128		165			180

WTR YR 1981 MEAN 133 MAX 180 MIN 105

02060500 ROANOKE (STAUNTON) RIVER AT ALTAVISTA, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21.0	---	10.0	---	2.0	---	11.0		---	---		---
2	21.0	---	10.0	---	3.0	8.0	11.0		---	---		---
3	20.5	15.0	9.0	---	3.5	9.0	11.5		---	---		---
4	---	15.5	9.0	---	3.5	8.5	---		---	---		---
5	---	15.0	9.0	---	4.0	9.0	---		---	---		---
6	21.0	14.5	---	---	4.0	9.0	---		---	---		---
7	21.0	14.0	---	---	5.0	---	12.0		---	---		---
8	21.0	15.5	10.0	---	5.0	---	12.0		---	---		---
9	21.0	15.0	10.0	---	---	11.0	12.0		---	---		---
10	21.0	14.0	10.0	---	---	11.0	---		---	---		---
11	---	13.5	10.0	---	---	11.0	---		21.5	---		---
12	---	13.5	10.0	---	---	11.0	---		---	---		---
13	23.0	14.0	---	---	---	11.5	---		---	---		---
14	20.0	14.5	---	2.5	---	---	12.5		---	---		---
15	20.0	---	9.0	---	---	---	12.0		---	---		---
16	18.0	---	8.5	5.0	6.0	10.0	11.0		---	---		---
17	17.0	13.0	8.0	---	7.0	10.0	9.0		---	---		---
18	---	13.0	8.0	---	7.0	10.0	---		---	---		---
19	---	12.5	7.5	2.5	7.5	10.0	---		---	---		---
20	19.0	12.0	---	2.5	7.5	11.0	10.0		---	---		---
21	---	11.5	---	4.0	---	---	11.0		---	---		---
22	18.0	12.0	---	5.0	---	---	11.0		---	---		---
23	17.0	11.5	---	5.5	8.0	9.0	12.0		---	---		---
24	18.0	11.5	---	---	8.0	10.0	12.0		---	---		17.5
25	---	11.5	---	---	8.0	10.0	---		---	---		---
26	18.0	11.0	---	4.5	8.0	10.0	---		---	---		---
27	---	11.0	---	4.5	8.5	---	14.0		---	---		---
28	18.0	10.0	---	4.5	---	---	14.0		---	---		---
29	17.0	---	---	4.0	---	---	14.0		---	---		---
30	17.0	---	---	3.5	---	---	15.0		---	21.5		---
31	17.0	---	---	2.5	---	11.0	---		---	---		---
MEAN	19.5	13.0	9.0	4.0	6.0	10.0	12.0		21.5	21.5		17.5

WTR YR 1981 MEAN 11.5 MAX 23.0 MIN 2.0

02061500 BIG OTTER RIVER NEAR EVINGTON, VA

LOCATION.--Lat 37°12'30", long 79°18'14", Campbell County, Hydrologic Unit 03010101, on right bank 60 ft (18 m) upstream from bridge on State Highway 682, 2.0 mi (3.2 km) southwest of Evington, and 2.1 mi (3.4 km) upstream from Flat Creek.

DRAINAGE AREA.--320 mi² (829 km²).

PERIOD OF RECORD.--October 1936 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1965, published as Otter River near Evington.

REVISED RECORDS.--WSP 852: 1937. WSP 892: 1938-39(M). WSP 972: 1937-39. WSP 1032: 1940. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 544.02 ft (165.817 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--45 years, 329 ft³/s (9.317 m³/s), 13.96 in/yr (355 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,500 ft³/s (779 m³/s) Oct. 19, 1937, Aug. 19, 1939, gage height, 23.1 ft (7.04 m), from rating curve extended above 7,000 ft³/s (200 m³/s) on basis of unit hydrograph and flood-routing studies by Corps of Engineers, and records for other stations in Roanoke River basin; minimum, 7.5 ft³/s (0.21 m³/s) Sept. 14, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,040 ft³/s (86.1 m³/s) June 7, gage height, 9.00 ft (2.743 m), no peak above base of 4,000 ft³/s (110 m³/s); minimum daily, 35 ft³/s (0.99 m³/s) Aug. 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	92	110	110	110	155	220	120	189	70	62	44
2	96	92	108	109	184	150	200	114	380	84	54	68
3	92	90	105	100	244	148	180	106	323	239	56	100
4	96	110	100	90	171	149	165	102	617	455	56	145
5	94	161	102	62	140	199	180	102	1030	449	52	400
6	122	122	105	68	120	210	260	100	649	608	58	110
7	112	104	106	78	125	180	191	98	1720	491	76	96
8	94	100	107	75	120	155	171	90	512	281	311	86
9	88	98	108	74	110	148	171	86	347	179	154	80
10	84	100	148	73	125	140	189	86	251	145	106	75
11	82	100	130	70	452	138	169	96	206	214	84	70
12	78	92	112	74	401	134	161	110	181	141	105	65
13	73	96	105	80	222	130	216	98	181	102	110	64
14	73	98	100	84	200	130	211	86	296	88	88	62
15	74	102	99	90	169	128	201	84	152	82	78	67
16	76	110	96	100	145	125	176	100	126	98	70	92
17	76	110	94	102	138	124	176	84	112	120	65	145
18	76	170	90	100	136	122	226	70	102	90	60	110
19	102	145	92	102	143	120	189	73	106	80	50	80
20	108	120	92	104	698	120	184	143	326	110	48	70
21	86	105	88	106	401	119	189	118	169	80	47	67
22	82	102	98	112	246	118	161	98	118	75	46	65
23	80	100	118	116	216	145	157	86	102	70	44	62
24	78	120	105	174	241	230	157	80	90	76	44	58
25	102	155	95	150	211	170	143	76	80	90	40	55
26	132	130	92	145	200	160	134	74	125	108	38	55
27	110	115	100	138	185	150	130	74	97	80	38	55
28	98	132	108	138	165	145	128	231	84	100	37	54
29	100	135	118	130	---	155	122	211	75	142	35	50
30	98	120	119	124	---	180	118	147	72	90	42	48
31	96	---	120	116	---	260	---	130	---	74	43	---
TOTAL	2868	3426	3270	3194	6018	4737	5275	3273	8818	5111	2197	2598
MEAN	92.5	114	105	103	215	153	176	106	294	165	70.9	86.6
MAX	132	170	148	174	698	260	260	231	1720	608	311	400
MIN	73	90	88	62	110	118	118	70	72	70	35	44
CFSM	.29	.36	.33	.32	.67	.48	.55	.33	.92	.52	.22	.27
IN.	.33	.40	.38	.37	.70	.55	.61	.38	1.03	.59	.26	.30

CAL YR 1980 TOTAL 115771 MEAN 316 MAX 4270 MIN 40 CFSM .99 IN 13.46
WTR YR 1981 TOTAL 50785 MEAN 139 MAX 1720 MIN 35 CFSM .43 IN 5.90

02062500 ROANOKE (STAUNTON) RIVER AT BROOKNEAL, VA

LOCATION.--Lat 37°02'28", long 78°57'02", Campbell County, Hydrologic Unit 03010102, on left bank 1,600 ft (490 m) upstream from bridge on U.S. Highway 501 at Brookneal, 2.9 mi (4.7 km) upstream from Falling River, and at mile 255.9 (411.7 km).

DRAINAGE AREA.--2,415 mi^2 (6,255 km^2).

PERIOD OF RECORD.--April 1923 to current year.

REVISED RECORDS.--WSP 892: 1928(M). WSP 972: 1928-34. WSP 1303: 1924-27(M), 1929(M), 1941(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 351.96 ft (107.277 m) National Geodetic Vertical Datum of 1929. Apr. 30, 1923, to Aug. 29, 1929, nonrecording gage, Aug. 30, 1929, to Aug. 15, 1940, water-stage recorder, and Aug. 16 to Oct. 1, 1940, nonrecording gage at site 1,800 ft (550 m) downstream at same datum. Oct. 2, 1940, to Sept. 30, 1941, nonrecording gage at site 1,600 ft (490 m) downstream at same datum.

REMARKS.--Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 40.1 mi (64.5 km) upstream and since 1963 by Smith Mountain Lake (station 02057400) 58.1 mi (93.5 km) upstream. Gage-height telemeters at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--58 years, 2,388 ft^3/s (67.63 m^3/s), 13.43 in/yr (341 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 130,000 ft^3/s (3,680 m^3/s) Aug. 15, 1940, gage height, 46.5 ft (14.17 m), at present site, from gage-height relation curve, from rating curve extended above 55,000 ft^3/s (1,600 m^3/s) on basis of slope-area measurement by Geological Survey, unit hydrograph and flood-routing studies by Corps of Engineers, and records for other stations in Roanoke River basin; minimum daily, 140 ft^3/s (3.96 m^3/s) July 25, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,030 ft^3/s (199 m^3/s) June 7, gage height, 13.48 ft (4.109 m); minimum, 114 m^3/s (3.23 m^3/s) Jan. 5, gage height, 5.50 ft (1.676 m), result of freezeup; minimum daily, 250 ft^3/s (7.08 m^3/s) Feb. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1230	1390	366	1440	250	510	940	1270	578	445	524	559
2	1370	332	340	378	281	477	790	1230	864	482	515	564
3	1160	296	905	1010	1230	650	724	1160	1190	645	529	554
4	1230	1030	1600	340	1500	639	650	1250	1040	1410	534	655
5	404	1150	1520	258	1330	676	477	1260	1560	1210	573	830
6	366	1180	1550	1640	1320	785	515	1260	1670	1130	544	893
7	1140	1320	396	1350	482	768	790	1210	5390	1270	496	1440
8	1120	1400	332	1410	349	468	703	1140	2210	982	1310	905
9	1250	340	905	708	357	463	703	1110	1400	751	1390	708
10	1060	312	905	320	666	634	730	1210	1100	650	887	650
11	1390	1040	1520	284	1120	604	676	1240	910	681	624	609
12	361	1120	1580	296	1570	629	472	1100	916	870	629	573
13	320	1060	1160	964	928	645	458	1110	692	671	713	559
14	1070	1140	349	1360	785	400	740	1110	378	645	676	549
15	1090	1310	324	1430	468	418	796	1120	454	629	583	559
16	1110	332	899	893	418	400	719	1190	697	599	564	790
17	1180	324	916	841	629	578	687	1250	687	624	539	773
18	1170	1350	1240	308	614	529	706	1330	634	629	520	757
19	366	1310	1470	332	671	544	666	1330	639	609	534	650
20	391	1200	1060	645	2960	578	1380	1370	370	588	505	559
21	1140	1270	383	1340	2290	413	1440	1230	730	578	510	564
22	1110	1200	258	1250	1090	409	1500	1100	418	568	524	534
23	1130	332	818	1430	818	454	1480	1080	619	544	482	520
24	1270	345	1480	899	1040	655	1460	1140	524	676	505	510
25	1300	730	1800	284	1010	719	1270	1160	564	676	501	544
26	445	2660	332	284	922	655	1210	1140	588	619	491	544
27	491	2030	1120	807	870	614	1290	1020	463	599	491	544
28	1090	458	349	1270	713	486	1280	852	312	583	496	573
29	1020	818	427	1330	---	427	1180	905	288	559	482	529
30	1140	422	1430	660	---	440	1190	730	427	629	554	520
31	1290	---	1460	1120	---	719	---	593	---	634	604	---
TOTAL	30204	29201	29194	26881	26681	17386	27624	35200	28312	22185	18829	19518
MEAN	974	973	942	867	953	561	921	1135	944	716	607	651
MAX	1390	2660	1800	1640	2960	785	1500	1370	5390	1410	1390	1440
MIN	320	296	258	258	250	400	458	593	288	445	482	510
(*)	-350	-30	-343	-230	+533	+467	+311	-197	+245	+42	-266	-73
MEAN‡	624	943	599	637	1486	1028	1232	938	1189	758	341	578
CFSM‡	.26	.39	.25	.26	.62	.43	.51	.39	.49	.31	.14	.24
IN‡	.30	.44	.29	.30	.64	.49	.57	.45	.55	.36	.16	.27

CAL YR 1980 TOTAL 821525 MEAN 2245 MAX 20900 MIN 238 MEAN‡ 2123 CFSM‡ .88 IN‡ 11.97
WTR YR 1981 TOTAL 311215 MEAN 853 MAX 5390 MIN 250 MEAN‡ 856 CFSM‡ .35 IN‡ 4.81

* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; furnished by Appalachian Power Co.

‡ Adjusted for change in contents.

02064000 FALLING RIVER NEAR NARUNA, VA

LOCATION.--Lat 37°07'36", long 78°57'36", Campbell County, Hydrologic Unit 03010102, on left bank at upstream side of bridge on State Highway 643, 2.7 mi (4.3 km) northeast of Naruna, and 3.2 mi (5.1 km) upstream from Little Falling River.

DRAINAGE AREA.--173 mi^2 (448 km^2).

PERIOD OF RECORD.--July 1929 to January 1935, September 1941 to current year.

REVISED RECORDS.--WSP 1333: 1930, 1931-34(M), 1935. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 412.32 ft (125.675 m) National Geodetic Vertical Datum of 1929. Prior to Jan. 15, 1935, nonrecording gage at same site and datum.

REMARKS.--Records good except those for periods of no gage-height record, Oct. 29 to Dec. 1 and Apr. 20 to June 12, which are fair. Small diurnal fluctuation at times during low flow, cause unknown. Prior to 1958, diurnal fluctuation caused by gristmill at Spring Mills. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--45 years (water years 1930-34, 1942-81), 147 ft^3/s (4.163 m^3/s), 11.54 in/yr (293 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,600 ft^3/s (923 m^3/s) June 22, 1972, gage height, 29.21 ft (8.903 m), from rating curve extended above 6,100 ft^3/s (170 m^3/s) on basis of slope-area measurement of peak flow; minimum, 3.0 ft^3/s (0.085 m^3/s) Oct. 9, 1932, gage height, 2.18 ft (0.664 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 26.5 ft (8.08 m), from floodmarks, discharge, 22,000 ft^3/s (620 m^3/s), by slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,910 ft^3/s (82.4 m^3/s) time unknown June 7, gage height, 10.48 ft (3.194 m), no other peak above base of 2,300 ft^3/s (65 m^3/s); minimum, 16 ft^3/s (0.45 m^3/s) Aug. 28, 29, gage height, 2.52 ft (0.768 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	52	49	57	58	86	74	75	60	50	24	25	48
2	46	48	56	56	120	69	70	55	54	29	24	34
3	46	45	53	55	125	65	61	51	50	85	24	30
4	50	50	51	52	82	63	58	49	55	440	30	43
5	44	80	51	61	80	92	66	48	69	105	28	85
6	45	55	52	55	75	89	105	48	450	97	25	53
7	44	52	51	59	70	72	79	49	1700	76	27	500
8	41	52	51	54	69	65	70	50	180	51	77	135
9	39	53	53	50	74	62	73	45	120	40	57	78
10	38	56	58	52	75	60	84	50	74	35	35	55
11	39	52	55	50	403	59	73	68	58	51	33	44
12	36	52	52	49	228	57	68	55	52	41	63	38
13	34	52	51	46	114	56	125	48	49	34	52	35
14	35	52	50	50	91	54	106	45	46	32	35	32
15	36	53	49	56	77	52	116	43	43	30	30	32
16	37	56	49	62	70	55	92	41	42	29	29	115
17	37	61	49	58	66	54	87	41	37	32	27	82
18	43	130	50	55	66	52	103	40	35	30	25	55
19	56	90	53	59	138	52	85	59	35	28	24	44
20	43	65	53	59	1270	50	87	87	34	27	25	37
21	41	58	50	69	329	49	75	74	33	27	24	35
22	41	55	53	83	175	50	65	60	30	26	22	34
23	40	54	58	73	139	70	66	52	28	33	22	31
24	49	67	60	65	127	82	100	46	27	49	20	29
25	89	108	57	63	100	64	90	43	27	122	20	28
26	56	78	52	66	85	58	77	42	33	54	19	28
27	51	66	57	60	76	56	67	41	28	40	18	27
28	51	77	61	58	73	34	62	45	24	34	17	26
29	51	65	65	55	---	52	59	47	24	32	16	24
30	52	60	63	52	---	64	58	44	22	29	76	24
31	51	---	60	52	---	98	---	46	---	26	145	---
TOTAL	1413	1891	1680	1791	4483	1949	2402	1572	3509	1788	1094	1861
MEAN	45.6	63.0	54.2	57.8	160	62.9	80.1	50.7	117	57.7	35.3	62.0
MAX	89	130	65	83	1270	98	125	87	1700	440	145	500
MIN	34	45	49	46	66	49	58	40	22	24	16	24
CFSM	.26	.36	.31	.33	.93	.36	.46	.29	.68	.33	.20	.36
IN.	.30	.41	.36	.39	.96	.42	.52	.34	.75	.38	.24	.40

CAL YR 1980 TOTAL 47767 MEAN 131 MAX 1560 MIN 23 CFSM .76 IN 10.27
WTR YR 1981 TOTAL 25433 MEAN 69.7 MAX 1700 MIN 16 CFSM .40 IN 5.47

02065500 CUB CREEK AT PHENIX, VA

LOCATION.--Lat 37°04'45", long 78°45'50", Charlotte County, Hydrologic Unit 03010102, on right bank 10 ft (3 m) upstream from bridge on State Highway 40, 0.9 mi (1.4 km) west of Phenix, 1.9 mi (3.1 km) downstream from Rough Creek, and 6.4 mi (10.3 km) upstream from Louse Creek.

DRAINAGE AREA.--98.0 mi² (253.8 km²).

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1333: 1947(M), 1948, 1949(M). WSP 2104: Drainage area. WDR VA-76-1: 1975.

GAGE.--Water-stage recorder. Datum of gage is 370.19 ft (112.834 m) National Geodetic Vertical Datum of 1929. Prior to July 14, 1950, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--35 years, 96.6 ft³/s (2.736 m³/s), 13.39 in/yr (340 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,380 ft³/s (209 m³/s) June 22, 1972, gage height, 20.37 ft (6.209 m), from floodmark in gage house, from rating curve extended above 2,700 ft³/s (76 m³/s); minimum, 2.6 ft³/s (0.074 m³/s) Oct. 6, 1970, gage height, 0.74 ft (0.226 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in August 1940 reached a stage of 17.5 ft (5.33 m), from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 506 ft³/s (14.3 m³/s) June 7, gage height, 4.83 ft (1.472 m), no peak above base of 1,000 ft³/s (28 m³/s); minimum, 10 ft³/s (0.28 m³/s) Aug. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	34	50	46	42	60	63	44	32	13	15	33
2	37	33	49	46	80	57	61	41	40	15	15	22
3	42	32	48	44	113	53	54	38	36	36	15	19
4	44	37	46	45	101	51	49	37	36	162	20	21
5	38	51	46	40	97	66	65	36	47	125	16	44
6	36	38	47	37	85	68	146	36	68	64	15	34
7	35	34	47	36	54	56	92	37	411	47	16	151
8	34	34	47	36	64	51	70	38	179	33	73	145
9	33	34	47	37	62	50	70	34	63	25	47	51
10	32	37	51	36	56	50	82	38	45	25	22	35
11	33	37	50	34	196	49	67	55	38	41	18	25
12	34	34	47	33	319	47	61	47	32	32	19	22
13	32	33	46	33	131	46	78	36	30	25	31	20
14	32	34	46	34	88	45	78	34	29	22	20	19
15	32	34	45	38	76	43	82	33	28	20	17	19
16	33	35	46	38	67	44	73	32	26	19	16	30
17	33	38	46	39	63	47	65	30	22	21	15	39
18	34	71	45	39	61	45	70	31	21	20	15	27
19	68	59	45	42	74	44	61	57	21	18	14	22
20	44	45	44	48	209	43	62	68	21	17	15	19
21	34	49	41	52	350	42	66	53	21	16	15	19
22	31	47	39	72	133	42	55	40	19	16	13	18
23	30	45	37	72	96	59	55	35	18	17	12	17
24	31	57	34	54	88	70	83	32	17	28	12	16
25	39	92	34	54	74	55	68	31	17	41	11	15
26	52	65	32	54	65	49	55	28	17	30	11	15
27	39	56	32	51	60	47	51	27	18	22	10	15
28	35	66	35	49	58	46	48	31	15	21	11	15
29	36	62	39	45	---	45	45	35	14	30	12	15
30	37	54	40	43	---	53	43	31	13	21	15	14
31	37	---	44	43	---	79	---	28	---	16	101	---
TOTAL	1145	1377	1345	1370	2962	1602	2018	1173	1394	1038	657	956
MEAN	36.9	45.9	43.4	44.2	106	51.7	67.3	37.8	46.5	33.5	21.2	31.9
MAX	68	92	51	72	350	79	146	68	411	162	101	151
MIN	30	32	32	33	42	42	43	27	13	13	10	14
CFSM	.38	.47	.44	.45	1.08	.53	.69	.39	.47	.34	.22	.33
IN.	.43	.52	.51	.52	1.12	.61	.77	.45	.53	.39	.25	.36

CAL YR 1980 TOTAL 32698 MEAN 89.3 MAX 1060 MIN 23 CFSM .91 IN 12.41
WTR YR 1981 TOTAL 17037 MEAN 46.7 MAX 411 MIN 10 CFSM .48 IN 6.47

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA

LOCATION.--Lat 36°54'54", long 78°44'28", Halifax County, Hydrologic Unit 03010102, on right bank 14 ft (4 m) downstream from bridge on State Highway 746, 2.8 mi (4.5 km) northwest of Randolph, 3.6 mi (5.8 km) upstream from Roanoke Creek, and at mile 227.3 (365.7 km).

DRAINAGE AREA.--2,977 mi² (7,710 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1900 to September 1906, October 1927 to September 1930, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303. Prior to October 1902, published as Staunton River at Randolph. Gage heights collected since 1905 at this site or at former site are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 1203: 1928-30. WSP 1303: 1901-6. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 307.59 ft (93.753 m) National Geodetic Vertical Datum of 1929. Aug. 27, 1900, to Oct. 13, 1902, nonrecording gage at site 3.2 mi (5.1 km) downstream at datum about 5.9 ft (1.80 m) lower. Oct. 14, 1902, to Aug. 11, 1906, and Oct. 1, 1927, to Mar. 31, 1930, nonrecording gage at site of original gage at datum 3.93 ft (1.198 m) lower than present datum.

REMARKS.--Records good. Flow regulated since 1962 by Leesville Lake (station 02059400) 68.7 mi (110.5 km) upstream and since 1963 by Smith Mountain Lake (station 02057400) 86.7 mi (139.5 km) upstream. Gage-height telemeters at station.

AVERAGE DISCHARGE.--40 years, 3,065 ft³/s (86.80 m³/s), 13.98 in/yr (355 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 97,000 ft³/s (2,750 m³/s) Dec. 31, 1901, gage height, 35.0 ft (10.67 m), from graph based on gage readings, site and datum then in use; minimum daily, 179 ft³/s (5.07 m³/s) Sept. 8, 1965, July 7, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 16, 1940, reached a stage of 41.6 ft (12.68 m), present site and datum, discharge, 150,000 ft³/s (4,250 m³/s), from information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,280 ft³/s (263 m³/s) June 7, gage height, 15.52 ft (4.730 m); minimum, 332 ft³/s (9.40 m³/s) July 1, gage height, 4.40 ft (1.341 m); minimum daily, 345 ft³/s (9.77 m³/s) June 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1420	1690	658	1800	868	886	1050	1510	920	516	710	897
2	1740	956	598	1250	574	746	1220	1570	1100	542	602	706
3	1440	526	746	932	1390	725	1080	1420	1420	609	600	695
4	1380	874	1550	932	1760	834	980	1460	1420	3100	620	676
5	1020	1470	1840	517	1850	868	897	1510	1280	2500	637	891
6	513	1550	1930	1270	1690	968	834	1510	2600	1810	656	1180
7	857	1600	1330	1810	1260	1030	1060	1510	6650	1450	623	1680
8	1310	1820	598	1770	790	909	1160	1440	5540	1560	769	2950
9	1440	986	891	1330	709	688	1030	1350	2410	1110	1960	1300
10	1330	564	1070	773	874	683	1100	1370	1610	906	1370	994
11	1470	938	1450	559	1960	812	1150	1550	1140	824	955	869
12	938	1400	1880	500	3330	790	1040	1500	1230	989	746	788
13	463	1330	2020	1250	2210	801	812	1340	975	985	822	740
14	834	1330	886	1800	1440	801	823	1350	841	801	883	709
15	1230	1700	588	1850	1050	598	1110	1350	561	790	779	701
16	1270	944	834	1610	874	603	1200	1350	645	757	700	803
17	1260	574	1240	1160	909	598	1100	1430	825	772	657	1190
18	1470	1230	1160	768	992	757	1050	1530	812	785	620	1040
19	1030	1890	1750	583	1040	699	944	1660	749	760	609	950
20	637	1690	1290	763	3720	715	1310	1840	752	704	617	791
21	1080	1630	1240	1260	4350	746	1910	1760	618	695	591	697
22	1350	1600	545	1650	2290	603	1800	1480	746	681	600	698
23	1350	915	564	1900	1320	632	1860	1350	512	673	573	652
24	1470	627	1630	1670	1400	752	1980	1360	697	878	560	633
25	1550	784	2210	823	1370	938	1820	1400	636	1170	572	619
26	1010	2390	1130	588	1240	944	1560	1410	690	947	559	642
27	694	2990	998	834	1120	863	1590	1380	672	797	544	650
28	1100	1350	956	1310	998	818	1610	1190	527	728	547	649
29	1260	880	627	1690	---	688	1550	1120	379	742	546	666
30	1400	944	1180	1230	---	637	1470	1120	345	689	544	622
31	1560	---	1860	1440	---	704	---	903	---	744	772	---
TOTAL	36876	39172	37249	37622	43378	23836	38100	44023	39302	31014	22343	27078
MEAN	1190	1306	1202	1214	1549	769	1270	1420	1310	1000	721	903
MAX	1740	2990	2210	1900	4350	1030	1980	1840	6650	3100	1960	2950
MIN	463	526	545	500	574	598	812	903	345	516	544	619
(*)	-350	-30	-343	-230	+533	+467	+311	-197	+245	+42	-266	-73
MEAN‡	840	1276	859	984	2082	1236	1581	1223	1555	1042	455	830
CFSM‡	.28	.43	.29	.33	.70	.42	.53	.41	.52	.35	.15	.28
IN‡	.33	.48	.33	.38	.73	.48	.59	.47	.58	.40	.18	.31

CAL YR 1980 TOTAL 1047033 MEAN 2861 MAX 21400 MIN 316 MEAN‡ 2739 CFSM‡ .92 IN‡ 12.53
WTR YR 1981 TOTAL 419993 MEAN 1151 MAX 6650 MIN 345 MEAN‡ 1154 CFSM‡ .39 IN‡ 5.26

* Change in contents, equivalent in cubic feet per second, in Smith Mountain and Leesville Lakes; furnished by Appalachian Power Company.

‡ Adjusted for change in contents.

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1930, 1951 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1950 to September 1956, April 1968 to current year.
WATER TEMPERATURES: October 1950 to September 1956, April 1968 to current year.
SUSPENDED-SEDIMENT DISCHARGE: January 1954 to September 1981 (discontinued).

REMARKS.--Daily sediment records based on once-weekly sediment samples and water-discharge hydrograph.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 470 micromhos May 9, 1976; minimum daily, 26 micromhos Jan. 1, 1979.
WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 15, 1968; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 165 micromhos Aug. 29; minimum daily, 68 micromhos June 7, 8.
WATER TEMPERATURES: Maximum daily, 28.0°C June 16; minimum daily, 0.0°C on many days during December to February.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT 06...	1345	499	143	6.6	17.0	5	53	6	13	5.1	6.0	1.9
DEC 02...	0935	603	112	7.6	5.5	6	40	7	9.4	4.0	5.4	1.7
JAN 12...	1200	1130	131	6.4	.0	5	46	6	11	4.4	6.2	1.7
FEB 23...	1545	1380	84	7.0	11.5	90	26	0	6.2	2.6	5.1	1.8
APR 21...	0920	1920	98	7.3	15.5	5	35	0	8.6	3.2	4.5	1.6
JUN 08...	1500	4720	70	6.9	23.5	300	21	6	5.4	1.9	3.4	2.3
JUL 28...	0900	730	145	7.6	27.0	<5	47	2	11	4.7	8.4	2.3
SEP 22...	1100	1000	145	7.7	19.5	10	47	0	11	4.8	6.5	2.1

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 06...	47	7.4	5.5	.1	11	86	78	--	--	--	60
DEC 02...	33	5.8	4.4	.1	14	73	65	<.010	.12	<.010	150
JAN 12...	40	7.2	5.5	.1	13	85	73	--	--	--	100
FEB 23...	29	7.4	4.4	<.1	14	65	59	.020	.81	<.010	260
APR 21...	38	6.6	3.5	.1	12	62	63	<.010	.19	<.010	120
JUN 08...	15	8.8	2.7	.1	11	60	45	.010	.51	<.010	220
JUL 28...	45	9.9	6.8	.1	9.2	87	80	<.010	.36	<.010	70
SEP 22...	48	10	6.9	.2	8.2	88	79	.020	.19	.020	100

< Actual value is known to be less than the value shown.

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	127	144	114	118	120	100	115	114	116	131	146	137
2	133	124	143	125	115	98	115	115	117	76	148	137
3	138	124	146	125	105	95	105	127	118	87	148	---
4	138	125	146	122	100	96	102	127	118	92	143	157
5	139	125	145	122	120	98	105	118	112	92	140	158
6	141	128	146	135	140	105	102	118	114	92	152	117
7	131	128	145	130	135	100	90	123	68	94	152	74
8	122	129	144	123	110	110	85	123	68	118	136	72
9	142	138	122	120	113	106	105	123	97	113	102	99
10	145	141	125	140	103	106	105	123	98	113	100	124
11	146	125	125	142	85	110	108	126	97	113	100	124
12	144	124	133	140	85	115	100	126	114	129	116	129
13	142	146	140	140	93	115	100	126	114	129	119	137
14	145	145	130	140	90	115	102	127	114	120	134	139
15	146	145	135	140	93	113	109	128	114	129	136	142
16	148	144	122	140	90	113	91	137	117	129	139	144
17	139	142	85	133	90	113	105	134	113	134	138	137
18	128	127	125	125	---	117	105	134	112	136	139	137
19	125	123	125	122	---	117	91	128	131	140	144	139
20	123	130	133	115	---	100	91	126	133	140	157	139
21	123	135	115	108	70	117	100	126	134	140	154	139
22	122	138	140	110	80	108	100	125	134	138	158	142
23	140	135	---	120	83	108	107	128	116	136	159	144
24	141	135	120	120	80	101	109	127	116	100	157	141
25	142	130	135	113	85	108	109	127	119	101	161	153
26	142	145	135	110	108	108	109	127	129	129	163	157
27	141	147	130	108	105	110	109	---	129	130	161	157
28	142	146	118	100	100	120	111	143	119	132	163	157
29	137	147	120	122	---	118	111	139	136	132	165	149
30	140	119	---	120	---	118	114	116	134	134	136	150
31	144	---	120	130	---	109	---	116	---	146	137	---
MEAN	137	134	130	124	100	109	104	126	115	120	142	136

WTR YR 1981 MEAN 123 MAX 165 MIN 68

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	10.0	5.0	.0	---	7.0	13.0	16.0	23.0	25.0	23.0	22.0
2	18.0	11.0	6.0	.0	---	8.0	13.0	15.0	25.0	25.0	24.0	23.0
3	16.0	10.0	6.0	.0	.0	7.5	13.0	13.0	22.0	25.0	24.0	---
4	16.0	10.0	5.0	.0	.0	6.0	13.0	13.0	25.0	25.0	24.0	22.0
5	14.0	10.0	6.0	.0	.0	7.5	13.0	16.0	25.0	25.0	24.0	22.0
6	14.0	11.0	7.0	.0	3.0	5.0	13.0	19.0	25.0	24.5	23.5	21.0
7	11.0	12.0	7.0	.5	.0	5.0	10.0	16.0	21.5	24.0	23.0	21.0
8	18.0	12.0	7.0	1.0	1.0	5.0	11.5	15.0	21.0	26.0	23.5	21.0
9	15.0	13.0	---	1.0	.0	5.0	13.0	15.0	24.0	26.0	23.5	18.0
10	17.0	13.0	8.0	.0	2.0	5.0	13.5	17.0	24.0	26.0	23.0	19.0
11	17.0	7.5	7.0	.0	7.0	6.0	15.5	18.0	24.5	26.0	23.0	18.5
12	11.0	7.0	6.0	.0	2.0	6.0	14.0	15.0	24.5	27.0	23.0	20.0
13	10.0	7.0	5.0	.0	.0	6.0	14.0	15.0	25.0	27.0	23.0	20.0
14	10.0	8.0	4.0	.0	4.0	5.0	13.5	16.0	27.0	26.0	22.5	20.5
15	12.0	12.0	3.0	.0	3.0	8.0	14.0	17.0	27.0	25.0	23.0	21.0
16	12.0	9.0	5.0	.0	5.0	9.0	13.0	17.0	28.0	25.0	22.0	21.0
17	13.0	8.0	5.0	.0	6.0	8.0	15.5	17.0	27.0	24.0	22.0	21.0
18	13.0	7.0	5.0	.0	---	4.0	16.0	17.0	26.0	25.0	22.0	20.0
19	13.0	5.0	5.0	.0	---	4.0	16.0	16.0	25.0	25.0	22.0	17.0
20	13.0	5.0	1.5	3.0	---	4.0	16.0	13.0	27.0	26.0	22.0	17.0
21	13.0	3.0	.0	4.0	10.0	5.0	14.0	14.0	27.0	26.0	21.5	16.0
22	13.0	5.0	.0	4.0	12.0	2.0	14.0	15.0	27.0	25.0	22.0	17.5
23	14.0	7.0	---	3.0	12.0	2.0	16.5	20.0	26.5	25.0	22.0	17.0
24	14.0	7.0	2.0	1.0	7.5	5.0	17.0	20.0	26.5	24.0	22.0	14.0
25	14.0	8.0	.0	2.0	6.0	6.0	15.0	20.5	26.0	24.0	22.0	14.0
26	11.0	7.0	.0	3.0	7.0	6.0	15.0	20.5	25.0	25.0	22.0	16.0
27	12.0	7.0	.0	5.0	6.0	11.0	15.0	---	27.0	26.0	22.0	14.5
28	12.0	7.0	1.0	5.0	6.0	13.0	17.0	20.0	26.0	26.0	21.5	15.0
29	11.0	6.0	2.0	1.0	---	15.0	18.0	20.0	25.0	27.0	21.0	15.0
30	11.0	5.0	---	.0	---	15.0	16.0	22.0	25.0	24.0	22.0	15.0
31	10.0	---	.0	.0	---	13.0	---	23.0	---	23.0	22.0	---
MEAN	13.5	8.5	4.0	1.0	4.5	7.0	14.5	17.0	25.5	25.0	22.5	18.5

WTR YR 1981 MEAN 13.5 MAX 28.0 MIN .0

02066000 ROANOKE (STAUNTON) RIVER AT RANDOLPH, VA--Continued

SUSPENDED SEDIMENT. WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	33	127	12	55	3	5.3	11	53	11	26	5	12
2	40	188	5	13	2	3.2	8	27	7	11	3	6.0
3	37	144	2	2.8	5	10	4	10	13	49	8	16
4	30	112	4	9.4	8	33	3	7.5	15	71	10	23
5	27	74	6	24	10	50	2	2.8	15	75	13	30
6	14	19	10	42	10	52	15	51	15	68	15	39
7	18	42	10	43	8	29	15	73	12	41	18	50
8	28	99	13	64	3	4.8	13	62	10	21	16	39
9	31	121	6	16	5	12	10	36	9	17	10	19
10	30	108	2	3.0	7	20	6	13	12	28	10	18
11	35	139	5	13	9	35	5	7.5	58	307	14	31
12	20	51	8	30	12	61	8	11	80	719	13	28
13	10	13	7	25	15	82	14	47	58	346	15	32
14	15	34	7	25	6	14	24	117	39	152	16	35
15	30	100	12	55	3	4.8	35	175	24	68	4	6.5
16	45	154	7	18	7	16	11	48	20	47	3	4.9
17	40	136	4	6.2	7	23	8	25	20	49	5	8.1
18	45	179	8	27	7	22	6	12	20	54	5	10
19	20	56	20	102	10	47	4	6.3	23	65	3	5.7
20	14	24	20	91	3	10	7	14	166	2150	5	9.7
21	14	41	17	75	5	17	10	34	192	2250	5	10
22	22	80	15	65	2	2.9	12	53	130	804	4	6.5
23	20	73	8	20	3	4.6	13	67	104	371	4	6.8
24	20	79	6	10	10	44	11	50	33	125	4	8.1
25	22	92	7	15	12	72	8	18	24	89	5	13
26	16	44	20	129	8	24	8	13	20	67	5	13
27	8	15	26	210	5	13	10	23	18	54	3	7.0
28	10	30	10	36	4	10	14	50	6	16	3	6.6
29	10	34	4	9.5	2	3.4	16	73	---	---	4	7.4
30	15	57	5	13	8	25	13	43	---	---	3	5.2
31	14	59	---	---	12	60	14	54	---	---	9	17
TOTAL	---	2524	---	1246.9	---	810.0	---	1276.1	---	8140	---	523.5
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	16	45	20	82	16	40	41	57	39	75	57	138
2	24	79	22	93	20	59	48	70	34	55	40	76
3	15	44	16	61	23	88	54	89	30	49	40	75
4	20	53	14	55	25	96	220	1840	32	54	38	69
5	12	29	16	65	25	86	135	911	35	60	53	128
6	9	20	15	61	72	505	85	415	29	51	68	217
7	15	43	16	65	780	14000	70	274	25	42	102	463
8	18	56	15	58	770	11500	74	312	41	85	170	1350
9	15	42	14	51	180	1170	60	180	160	847	80	281
10	17	50	20	74	60	261	55	135	140	518	60	161
11	18	56	29	121	47	145	53	118	50	129	52	122
12	18	51	25	101	50	166	56	150	35	70	47	100
13	12	26	25	90	46	121	54	144	40	89	38	76
14	13	29	29	106	40	91	45	97	40	95	35	67
15	20	60	27	98	20	30	43	92	35	74	36	68
16	20	65	28	102	25	44	40	82	39	74	43	93
17	20	59	27	104	38	85	40	83	40	71	66	212
18	19	54	30	124	34	75	42	89	50	84	55	154
19	17	43	32	143	39	79	40	82	52	86	49	126
20	50	177	30	149	45	91	40	76	60	100	40	85
21	93	480	28	133	36	60	37	69	55	88	34	64
22	26	126	25	100	49	99	35	64	60	97	32	60
23	25	126	22	80	54	75	38	69	50	77	28	49
24	27	144	20	73	56	105	100	237	47	71	25	43
25	25	123	23	87	50	86	150	474	48	74	25	42
26	19	80	21	80	67	125	100	256	43	65	27	47
27	25	107	20	75	65	118	48	103	40	59	24	42
28	25	109	18	58	60	85	46	90	46	68	25	44
29	22	92	17	51	30	31	48	96	45	66	24	43
30	18	71	18	54	26	24	38	71	45	66	21	35
31	---	---	15	37	---	---	44	88	54	113	---	---
TOTAL	---	2539	---	2631	---	29540	---	6913	---	3552	---	4530

TOTAL LOAD FOR YEAR: 64225.5 TONS.

02067800; 02067820 TALBOTT AND TOWNES RESERVOIRS NEAR KIBLER, VA

LOCATION.--Talbott Dam: Lat 36°40'39", long 80°23'52", Patrick County, Hydrologic Unit 03010103, on Dan River 4.5 mi (7.2 km) northeast of Kibler. Townes Dam: Lat 36°41'10", long 80°25'50", Patrick County, Hydrologic Unit 03010103, on Dan River about 4 mi (6 km) north of Kibler.

DRAINAGE AREA.--Talbott Dam, 20.2 mi^2 (52.3 km^2); Townes Dam, 32.9 mi^2 (85.2 km^2).

PERIOD OF RECORD.--February 1939 to December 1945, January 1948 to September 1960 (published in WSP 1723), and October 1960 to current year.

REMARKS.--The two reservoirs are operated as a unit for storage of water for Pinnacles hydroelectric plant. Total capacity of Talbott Reservoir, 8,035 acre-ft (9.91 hm^3), and Townes Reservoir, 1,377 acre-ft (1.70 hm^3). Storage began in Talbott Reservoir on Feb. 13, 1939, and in Townes Reservoir several months earlier.

COOPERATION.--Records furnished by city of Danville.

COMBINED MONTHEND CONTENTS AT 2400, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

Date	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	6440	
Oct. 31	6480	+40
Nov. 30	6220	-260
Dec. 31	5330	-890
CAL YR 1980		-2680
Jan. 31	5470	+140
Feb. 28	7500	+2030
Mar. 31	7940	+440
Apr. 30	7420	-520
May 31	7220	-200
June 30	6430	-790
July 31	5310	-1120
Aug. 31	4590	-720
Sept. 30	5480	+890
WTR YR 1981		-960

02068500 DAN RIVER NEAR FRANCISCO, NC

LOCATION.--Lat 36°30'53", long 80°18'11", Stokes County, Hydrologic Unit 03010103, on left bank 200 ft (61 m) upstream from bridge on State Highway 704, 700 ft (213 m) downstream from remains of Georges Mill, 0.2 mi (0.3 km) downstream from Elk Creek, 3 mi (5 km) east of Francisco, and 7.9 mi (12.7 km) downstream from Little Dan River.

DRAINAGE AREA.--129 mi^2 (334 km^2).

PERIOD OF RECORD.--August 1924 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1303: 1938-50 (monthly runoff). WSP 1433: 1925-26, 1928-29, 1931, 1942, 1948. WDR NC-80-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 831.99 ft (253.591 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 15, 1929, nonrecording gage at same site and datum.

REMARKS.--Records good. Since 1938, considerable diurnal fluctuation and regulation by Talbott Reservoir (station 02067800) and Townes Reservoir (station 02067820) above Pinnacles Hydroelectric Plant in Virginia, 28 mi (45 km) above station. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 191 ft^3/s (5.409 m^3/s), 20.11 in/yr (511 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,900 ft^3/s (535 m^3/s) Sept. 22, 1979, gage height, 18.11 ft (5.520 m), from rating curve extended above 8,400 ft^3/s (238 m^3/s) on basis of slope-area measurement of peak flow; minimum, 7.1 ft^3/s (0.20 m^3/s) Sept. 8, 1932, gage height, 0.43 ft (0.131 m); minimum daily, 27 ft^3/s (0.76 m^3/s) Aug. 24, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1916 reached a stage of about 15 ft (4.6 m), from information by local residents, discharge, 16,000 ft^3/s (453 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,790 ft^3/s (50.7 m^3/s) Sept. 4, gage height, 4.33 ft (1.320 m), no peak above base of 2,000 ft^3/s (57 m^3/s); minimum, 20 ft^3/s (0.57 m^3/s) Aug. 24, gage height, 0.83 ft (0.253 m); minimum daily, 27 ft^3/s (0.76 m^3/s) Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	106	80	85	80	86	78	141	116	133	87	55	40
2	95	77	82	74	176	76	116	95	107	83	55	70
3	96	75	85	76	112	75	121	100	117	109	62	44
4	89	105	120	71	145	79	133	88	144	159	58	550
5	90	89	99	121	128	127	172	125	169	242	96	148
6	107	110	94	106	120	87	148	112	171	140	121	82
7	86	95	82	88	98	81	143	109	166	165	68	100
8	82	80	82	81	78	78	134	87	112	153	96	98
9	81	78	83	111	70	77	133	88	137	139	72	69
10	81	78	90	91	71	82	138	90	150	151	62	56
11	143	71	112	131	359	79	120	95	133	149	62	51
12	119	95	118	194	175	85	134	88	90	79	60	48
13	72	111	96	294	142	86	133	76	89	76	55	46
14	72	92	82	153	106	84	142	81	88	91	53	45
15	72	82	95	91	88	86	129	104	84	77	52	78
16	71	82	107	95	80	84	118	91	144	70	53	519
17	71	89	105	112	77	105	118	104	120	71	53	131
18	73	163	115	108	83	92	119	83	81	69	52	84
19	92	111	92	91	80	83	110	107	82	67	51	70
20	79	122	86	85	90	90	119	164	104	67	53	62
21	73	111	138	77	78	87	143	160	84	69	45	58
22	73	92	140	80	76	80	129	100	79	71	31	55
23	73	82	120	68	78	107	128	97	117	62	33	53
24	78	111	84	69	104	102	155	90	75	66	27	50
25	117	118	88	65	100	105	129	92	97	65	29	48
26	97	122	131	63	78	97	119	151	188	64	29	49
27	81	130	131	63	78	86	124	139	80	62	29	49
28	100	114	137	63	78	90	147	190	75	101	28	48
29	90	99	79	61	---	91	181	176	72	102	28	46
30	114	86	80	63	---	179	117	116	78	59	29	46
31	107	---	81	57	---	183	---	140	---	55	31	---
TOTAL	2780	2950	3119	2981	3034	2921	3993	3454	3366	3020	1628	2893
MEAN	89.7	98.3	101	96.2	108	94.2	133	111	112	97.4	52.5	96.4
MAX	143	163	140	294	359	183	181	190	188	242	121	550
MIN	71	71	79	57	70	75	110	76	72	55	27	40
(*)	+1	-4	-14	+2	+37	+7	-9	-3	-13	-18	-12	+15

CAL YR 1980 TOTAL 83974 MEAN 229 MAX 4510 MIN 71 MEAN‡ 225 CFSM‡ 1.74 IN‡ 23.68
WTR YR 1981 TOTAL 36139 MEAN 99.0 MAX 550 MIN 27 MEAN‡ 98.0 CFSM‡ .76 IN‡ 10.18

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02069700 SOUTH MAYO RIVER NEAR NETTLERIDGE, VA

LOCATION.--Lat 36°34'15", long 80°07'47", Patrick County, Hydrologic Unit 03010103, on right bank 60 ft (18 m) downstream from bridge on State Highway 700, 1.2 mi (1.9 km) southeast of Nettleridge, 1.4 mi (2.3 km) downstream from Russell Creek, and 3.6 mi (5.8 km) upstream from Spoon Creek.

DRAINAGE AREA.--84.6 mi² (219.1 km²).

PERIOD OF RECORD.--October 1962 to current year.

REVISED RECORDS.--WSP 2104: Drainage area. WDR VA-74-1: 1972(M).

GAGE.--Water-stage recorder. Datum of gage is 871.60 ft (265.664 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 9, 1964, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--19 years, 126 ft³/s (3.568 m³/s), 20.23 in/yr (514 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 20,600 ft³/s (583 m³/s) Sept. 22, 1979, gage height, 22.00 ft (6.706 m), from rating curve extended above 2,900 ft³/s (82 m³/s) on basis of contracted-opening measurements at gage heights 18.32 ft (5.584 m) and 22.00 ft (6.706 m); minimum, 20 ft³/s (0.57 m³/s) Aug. 29, 30, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,040 ft³/s (29.5 m³/s) Sept. 16, gage height, 6.51 ft (1.984 m), no peak above base of 1,300 ft³/s (37 m³/s); minimum, 20 ft³/s (0.57 m³/s) Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	60	63	53	60	57	107	58	51	51	25	28
2	67	57	62	50	138	57	88	54	54	39	24	31
3	65	56	60	49	98	55	78	51	55	70	25	37
4	63	63	59	48	77	55	72	50	60	136	28	244
5	59	64	58	43	70	80	77	48	56	215	25	136
6	87	58	58	45	65	68	100	48	59	146	27	74
7	66	57	57	43	60	62	81	49	87	242	38	118
8	60	56	57	43	61	58	76	48	60	80	66	90
9	57	55	57	42	57	57	75	44	50	57	48	61
10	55	55	62	42	53	55	81	44	44	48	37	46
11	54	54	58	43	189	55	71	61	43	53	33	40
12	50	53	55	44	146	54	68	53	40	44	30	36
13	48	53	55	44	100	53	66	45	39	59	28	33
14	49	53	54	45	82	52	65	44	39	46	27	31
15	50	55	53	45	75	50	72	48	36	43	27	60
16	50	56	53	45	68	50	64	46	34	40	26	504
17	50	57	53	46	66	50	62	41	33	41	25	174
18	50	94	52	46	64	49	65	41	33	38	25	82
19	65	70	52	50	65	49	61	60	33	36	25	60
20	58	63	51	53	76	48	86	83	71	34	27	50
21	54	60	49	56	68	48	86	81	43	36	27	45
22	52	59	53	69	64	48	71	57	36	32	25	42
23	52	58	54	58	64	64	68	48	33	30	24	39
24	51	87	54	55	69	85	90	44	31	31	24	36
25	102	96	52	53	63	85	74	42	32	38	22	34
26	83	72	52	50	60	72	67	41	113	34	22	34
27	63	69	54	50	58	68	65	47	43	32	22	33
28	60	78	57	51	57	63	62	142	35	30	22	32
29	60	69	57	48	---	59	59	104	33	36	21	31
30	66	64	55	50	---	159	59	72	31	30	21	31
31	67	---	55	48	---	150	---	58	---	26	22	---
TOTAL	1904	1901	1721	1507	2173	2015	2216	1752	1407	1873	868	2292
MEAN	61.4	63.4	55.5	48.6	77.6	65.0	73.9	56.5	46.9	60.4	28.0	76.4
MAX	102	96	63	69	189	159	107	142	113	242	66	504
MIN	48	53	49	42	53	48	59	41	31	26	21	28
CFSM	.73	.75	.66	.57	.92	.77	.87	.67	.55	.71	.33	.90
IN.	.84	.84	.76	.66	.96	.89	.97	.77	.62	.82	.38	1.01

CAL YR 1980 TOTAL 50892 MEAN 139 MAX 2260 MIN 46 CFSM 1.64 IN 22.38
WTR YR 1981 TOTAL 21629 MEAN 59.3 MAX 504 MIN 21 CFSM .70 IN 9.51

02070000 NORTH MAYO RIVER NEAR SPENCER, VA

LOCATION.--Lat 36°34'05", long 79°59'15", Henry County, Hydrologic Unit 03010103, on left bank 800 ft (244 m) downstream from bridge on State Highway 629 at Moores Mill, 2.1 mi (3.4 km) downstream from Horse Pasture Creek, and 3.8 mi (6.1 km) southeast of Spencer.

DRAINAGE AREA.--108 mi² (280 km²).

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1303: 1929-32(M), 1934(M).

GAGE.--Water-stage recorder. Datum of gage is 730.94 ft (222.791 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Jan. 23, 1936, nonrecording gage at site 800 ft (244 m) upstream at datum 1.50 ft (0.457 m) higher. July 25 to Sept. 27, 1936, nonrecording gage at present site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--53 years, 127 ft³/s (3.597 m³/s), 15.97 in/yr (406 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,200 ft³/s (487 m³/s) Oct. 9, 1947, gage height, 15.80 ft (4.816 m), from rating curve extended above 7,200 ft³/s (200 m³/s) on basis of slope-area measurement at gage height 13.41 ft (4.087 m) and velocity-area study; minimum, 14 ft³/s (0.40 m³/s) Aug. 11, 1956; minimum gage height, 1.08 ft (0.329 m) Oct. 8, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 745 ft³/s (21.1 m³/s) Sept. 16, gage height, 3.52 ft (1.073 m), no peak above base of 1,400 ft³/s (40 m³/s); minimum, 19 ft³/s (0.54 m³/s) Aug. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	113	78	83	71	78	71	134	68	55	41	28	28
2	79	74	81	68	126	71	109	64	57	41	27	32
3	78	72	78	66	100	68	94	61	64	58	27	35
4	78	87	76	69	90	71	87	60	60	104	28	85
5	74	87	74	70	82	100	94	60	55	244	28	126
6	98	78	76	62	80	87	111	58	57	163	28	68
7	81	74	74	60	78	78	88	61	76	90	35	57
8	74	74	74	59	78	74	85	58	63	64	49	149
9	71	74	74	58	69	71	90	55	54	54	49	71
10	68	71	78	56	68	71	100	58	49	50	35	46
11	68	69	74	55	172	69	88	66	49	45	30	43
12	63	68	72	56	177	68	83	63	48	43	28	38
13	61	68	71	57	102	66	79	57	85	45	27	36
14	63	69	71	57	102	64	78	54	66	43	26	34
15	63	72	71	57	87	64	83	60	48	42	25	49
16	63	74	71	58	81	64	76	58	44	41	24	432
17	63	76	71	58	79	64	74	53	41	42	23	263
18	64	117	69	59	79	63	76	53	40	38	22	96
19	78	92	69	60	85	63	72	83	42	37	22	66
20	69	81	69	68	105	61	109	111	58	37	23	55
21	66	78	72	74	90	61	117	102	48	48	22	49
22	64	76	80	79	83	64	87	69	42	37	21	45
23	64	74	76	71	85	87	83	61	38	33	20	43
24	64	105	71	66	88	124	102	55	36	50	20	40
25	109	140	72	64	79	115	87	52	40	52	20	38
26	109	96	75	64	74	102	78	50	72	43	20	37
27	81	94	80	64	72	90	74	53	44	38	20	37
28	76	107	82	64	72	81	72	102	38	35	20	35
29	74	92	78	63	---	76	69	85	36	33	19	34
30	88	85	72	63	---	198	69	66	34	32	20	34
31	87	---	72	64	---	243	---	58	---	28	20	---
TOTAL	2351	2502	2306	1960	2561	2649	2648	2014	1539	1751	806	2201
MEAN	75.8	83.4	74.4	63.2	91.5	85.5	88.3	65.0	51.3	56.5	26.0	73.4
MAX	113	140	83	79	177	243	134	111	85	244	49	432
MIN	61	68	69	55	68	61	69	50	34	28	19	28
CFSM	.70	.77	.69	.59	.85	.79	.82	.60	.48	.52	.24	.68
IN.	.81	.86	.79	.68	.88	.91	.91	.69	.53	.60	.28	.76

CAL YR 1980 TOTAL 51074 MEAN 140 MAX 2640 MIN 53 CFSM 1.30 IN 17.59
WTR YR 1981 TOTAL 25288 MEAN 69.3 MAX 432 MIN 19 CFSM .64 IN 8.71

02071900 PHILPOTT LAKE NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'52", long 80°01'40", Henry County, Hydrologic Unit 03010103, at Philpott Dam on Smith River, 1.5 mi (2.4 km) west of Philpott, 12.0 mi (19.3 km) upstream from Reed Creek, and at mile 44.3 (71.3 km).

DRAINAGE AREA.--216 mi^2 (559 km^3).

PERIOD OF RECORD.--August 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by concrete dam. Spillway, with crest at elevation 985 ft (300.2 m), is ungated and 120 ft (40 m) long. Storage began in August 1950 during construction; initial filling started in December 1951; water in reservoir first reached rule-curve elevation in July 1953. Total capacity at maximum flood-control pool elevation, 998 ft (304.2 m), is 247,400 acre-ft (305 hm^3) of which 47,000 acre-ft (58.0 hm^3) is above the spillway crest; 34,200 acre-ft (42.2 hm^3) is controlled flood storage between elevations 974 ft (296.9 m), maximum power pool, and 985 ft (300.2 m); 57,800 acre-ft (71.3 hm^3) is available for power between elevations 951 ft (289.9 m), minimum power pool, and 974 ft (296.9 m); and 108,400 acre-ft (134 hm^3) is inactive and dead storage below elevation 951 ft (289.9 m). Usable capacity is 92,000 acre-ft (113 hm^3) between elevations 951 ft (289.9 m) and 985 ft (300.2 m). Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, low-water regulation for pollution abatement and industrial water supply, and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 191,700 acre-ft (236 hm^3) June 22, 1972, elevation, 983.06 ft (299.637 m); minimum (after first filling to rule curve), 64,540 acre-ft (79.6 hm^3) Sept. 26, 1956, elevation, 927.59 ft (282.729 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 157,800 acre-ft (195 hm^3) Oct. 13, elevation, 971.07 ft (295.982 m); minimum, 133,080 acre-ft (164 hm^3) Sept. 30, elevation, 961.69 ft (293.123 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	970.48	156180	
Oct. 31	970.05	154980	-1200
Nov. 30	970.35	155820	+840
Dec. 31	970.31	155700	-120
CAL YR 1980			-2610
Jan. 31	968.98	152040	-3660
Feb. 28	969.60	153740	+1700
Mar. 31	969.95	154700	+960
Apr. 30	970.00	154840	+140
May 31	970.35	155820	+980
June 30	969.95	154700	-1120
July 31	968.90	151820	-2880
Aug. 31	965.00	141450	-10370
Sept. 30	961.69	133080	-8370
WTR YR 1981			-23100

02072000 SMITH RIVER NEAR PHILPOTT, VA

LOCATION.--Lat 36°46'50", long 80°01'30", Franklin County, Hydrologic Unit 03010103, on left bank 900 ft (270 m) downstream from Philpott Dam, 3.1 mi (5.0 km) west of Philpott, 11.6 mi (18.7 km) upstream from Reed Creek, and at mile 44.1 (71.0 km).

DRAINAGE AREA.--216 mi² (559 km²).

PERIOD OF RECORD.--August 1946 to current year.

REVISED RECORDS.--WSP 1553: 1953(M), 1955-56(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 804.27 ft (245.141 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 8, 1952, at site 1.9 mi (3.1 km) downstream at different datum.

REMARKS.--Records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 0.2 mi (0.3 km) upstream. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--35 years, 279 ft³/s (7.901 m³/s), 17.54 in/yr (446 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft³/s (481 m³/s) June 29, 1949, gage height, 20.3 ft (6.19 m), site and datum then in use, from rating curve extended above 9,700 ft³/s (270 m³/s) on basis of slope-area measurements at gage heights 18.2 ft (5.55 m) and 20.3 ft (6.19 m); minimum, 4.0 ft³/s (0.11 m³/s) Aug. 12, 1953, gage height, 1.50 ft (0.457 m); minimum daily, 24 ft³/s (0.68 m³/s) Dec. 16, 17, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,360 ft³/s (38.5 m³/s) Aug. 20, Sept. 18, gage height, 5.01 ft (1.527 m); minimum, 7.6 ft³/s (0.22 m³/s) Oct. 21, gage height, 1.80 ft (0.549 m); minimum daily, 36 ft³/s (1.02 m³/s) Oct. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	191	43	144	195	45	46	191	137	142	146	49	364
2	190	44	144	192	122	136	185	44	141	138	50	364
3	191	192	143	42	187	131	185	44	140	142	145	364
4	42	192	142	45	192	132	45	137	140	49	145	366
5	42	191	141	195	190	150	45	150	141	47	148	50
6	42	193	45	181	192	134	183	143	44	141	144	50
7	42	192	45	193	47	45	183	129	44	143	145	469
8	42	44	141	193	47	45	177	136	137	147	52	470
9	42	44	143	189	192	141	182	44	138	140	52	468
10	42	187	143	62	189	139	182	44	140	144	296	469
11	43	194	143	44	192	142	45	188	143	49	307	469
12	43	200	142	177	188	141	45	189	139	50	302	50
13	354	194	46	179	187	139	179	190	45	149	303	50
14	360	192	46	190	45	44	167	188	45	149	300	256
15	342	44	146	193	47	44	237	197	137	151	111	258
16	336	44	145	190	185	136	142	45	145	154	51	258
17	334	132	145	44	187	132	191	45	148	146	297	256
18	61	130	147	44	192	142	44	190	147	50	236	270
19	43	130	142	195	189	144	44	190	137	50	302	50
20	44	134	47	196	183	130	181	194	48	140	318	50
21	36	139	47	192	45	44	183	192	48	141	308	261
22	194	46	142	193	45	45	182	197	146	152	51	253
23	337	47	141	193	185	184	184	45	147	149	51	253
24	342	147	142	45	182	186	184	44	141	147	306	251
25	45	145	142	45	188	186	45	194	146	50	304	255
26	45	144	142	183	188	188	45	189	144	50	299	50
27	193	143	44	190	206	186	138	190	47	143	304	51
28	192	142	44	188	45	44	137	190	47	145	305	258
29	195	46	197	187	---	44	136	191	148	145	50	257
30	194	46	191	190	---	184	137	45	146	144	50	254
31	193	---	194	112	---	186	---	45	---	145	359	---
TOTAL	4792	3761	3806	4663	4082	3770	4204	4146	3501	3736	6140	7544
MEAN	155	125	123	150	146	122	140	134	117	121	198	251
MAX	360	200	197	196	206	188	237	197	148	154	359	470
MIN	36	43	44	42	45	44	44	44	44	47	49	50
(*)	-20	+14	-2	-60	+31	+16	+2	+16	-19	-47	-169	-141
MEAN‡	135	139	121	90	177	138	142	150	98	74	29	110
CFSM‡	.62	.64	.56	.42	.82	.64	.66	.69	.45	.34	.13	.51
IN‡	.72	.72	.65	.48	.85	.74	.73	.80	.51	.40	.15	.57

CAL YR 1980 TOTAL 114354 MEAN 312 MAX 3690 MIN 36 MEAN‡ 308 CFSM‡ 1.43 IN‡ 19.41
WTR YR 1981 TOTAL 54145 MEAN 148 MAX 470 MIN 36 MEAN‡ 116 CFSM‡ .54 IN‡ 7.29

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02072500 SMITH RIVER AT BASSETT, VA

LOCATION.--Lat 36°46'12", long 80°00'04", Henry County, Hydrologic Unit 03010103, on left bank 25 ft (8 m) upstream from bridge on State Highway 666 at north edge of North Bassett, 1.0 mi (1.6 km) northwest of Bassett, 3.0 mi (4.8 km) downstream from Town Creek, 5.6 mi (9.0 km) upstream from Reed Creek, 6.2 mi (10.0 km) downstream from Philpott Dam, and at mile 38.1 (61.3 km).

DRAINAGE AREA.--259 mi² (671 km²).

PERIOD OF RECORD.--April 1939 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 753.09 ft (229.542 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good. Since August 1950, flow regulated by Philpott Lake (station 02071900) 6.2 mi (10.0 km) upstream. Gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--42 years, 330 ft³/s (9.346 m³/s), 17.30 in/yr (439 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,600 ft³/s (753 m³/s) Aug. 14, 1940, gage height, 18.28 ft (5.572 m); minimum, 19 ft³/s (0.54 m³/s) July 19, 1956; minimum daily, 44 ft³/s (1.25 m³/s) Aug. 23, 1964; minimum gage height, 1.06 ft (0.323 m) Sept. 18, 26, 1953.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 19, 1937, reached a stage of about 22.9 ft (6.98 m), from information by local residents, discharge, 38,000 ft³/s (1,100 m³/s), from rating curve extended above 23,000 ft³/s (650 m³/s) on basis of backwater studies and records for station at Martinsville.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,560 ft³/s (44.2 m³/s) Sept. 16, gage height, 3.85 ft (1.173 m); minimum, 37 ft³/s (1.05 m³/s) Oct. 21, gage height, 1.34 ft (0.408 m); minimum daily, 55 ft³/s (1.56 m³/s) June 28, Aug. 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	227	68	170	225	62	66	231	168	167	166	58	390
2	221	66	171	220	176	158	217	63	180	156	57	387
3	221	223	173	65	221	152	216	62	176	169	160	392
4	69	230	170	65	220	159	67	160	172	71	160	465
5	68	226	169	221	220	185	69	173	175	63	162	85
6	79	227	69	217	222	161	217	173	66	165	160	65
7	67	224	68	221	67	67	212	155	67	173	162	497
8	66	68	167	218	68	65	208	160	164	160	79	507
9	64	66	171	218	220	165	219	61	159	158	72	501
10	65	217	172	85	221	162	217	62	164	160	320	501
11	65	225	171	61	267	168	69	216	165	59	330	501
12	64	232	170	217	239	166	66	213	162	59	330	67
13	387	225	68	206	222	162	207	212	61	164	326	58
14	397	223	66	218	71	63	199	210	59	166	322	273
15	376	69	170	221	69	63	211	224	153	169	124	286
16	371	68	172	218	212	161	234	60	164	170	57	353
17	370	163	172	63	226	154	223	59	165	162	317	322
18	86	176	167	75	222	167	71	214	164	59	255	298
19	71	161	177	221	226	167	65	224	153	58	322	66
20	66	162	67	222	228	157	226	246	59	156	339	62
21	59	164	64	221	71	64	224	227	58	157	328	280
22	225	71	168	222	68	64	217	224	159	168	57	276
23	377	67	172	222	226	222	224	62	161	161	56	277
24	380	201	173	65	221	229	227	61	154	175	323	276
25	96	185	170	64	222	225	71	218	160	74	323	281
26	73	175	169	217	220	222	66	213	157	62	321	60
27	226	177	67	218	240	220	167	198	56	158	326	59
28	228	178	68	218	66	64	165	240	55	164	327	272
29	229	73	227	216	---	64	164	230	160	172	56	277
30	231	69	223	219	---	240	167	66	162	161	55	281
31	229	---	225	133	---	239	---	66	---	161	379	---
TOTAL	5753	4679	4626	5492	5013	4621	5136	4920	4077	4276	6663	8415
MEAN	186	156	149	177	179	149	171	159	136	138	215	281
MAX	397	232	227	225	267	240	234	246	180	175	379	507
MIN	59	66	64	61	62	63	65	59	55	58	55	58
(*)	-20	+14	-2	-60	+31	+16	+2	+16	-19	-47	-169	-141
MEAN‡	166	170	147	117	210	165	173	175	117	91	46	140
CFSM‡	.64	.66	.57	.45	.81	.64	.67	.68	.45	.35	.18	.54
IN‡	.74	.73	.65	.52	.84	.73	.75	.78	.50	.41	.20	.60

CAL YR 1980 TOTAL 139042 MEAN 380 MAX 3790 MIN 59 MEAN‡ 376 CFSM‡ 1.45 IN‡ 19.77
WTR YR 1981 TOTAL 63671 MEAN 174 MAX 507 MIN 55 MEAN‡ 142 CFSM‡ .55 IN‡ 7.44

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02073000 SMITH RIVER AT MARTINSVILLE, VA

LOCATION.--Lat 36°39'40", long 79°52'51", Henry County, Hydrologic Unit 03010103, on right bank at south edge of Martinsville, 800 ft (244 m) downstream from bridge on U.S. Highways 58 and 220, and 5.0 mi (8.0 km) downstream from Beaver Creek.

DRAINAGE AREA.--380 mi² (984 km²).

PERIOD OF RECORD.--August 1929 to current year.

REVISED RECORDS.--WSP 1032: 1933-35(M), 1936-39, 1940-41(P). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 657.22 ft (200.321 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 19.6 mi (31.5 km) upstream. Some additional regulation by powerplant 1,000 ft (305 m) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--52 years, 455 ft³/s (12.89 m³/s), 16.26 in/yr (413 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 39,000 ft³/s (1,100 m³/s) Oct. 19, 1937, gage height, 21.50 ft (6.553 m), from rating curve extended above 17,000 ft³/s (480 m³/s) on basis of computations of flow over dam at gage heights 16.76 ft (5.108 m) and 21.50 ft (6.553 m); minimum, 3.8 ft³/s (0.11 m³/s) Mar. 19, 1955; minimum daily, 19 ft³/s (0.54 m³/s) Oct. 6, 1935; minimum gage height, 0.69 ft (0.210 m) Sept. 8, 1969.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,940 ft³/s (54.9 m³/s) Sept. 16, gage height, 3.85 ft (1.173 m); minimum, 6.2 ft³/s (0.18 m³/s) Dec. 8, gage height, 0.83 ft (0.253 m); minimum daily, 50 ft³/s (1.42 m³/s) Aug. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	285	201	236	148	165	318	275	221	223	139	409
2	334	152	275	374	367	245	290	142	245	218	70	458
3	280	162	265	155	330	241	260	142	285	223	173	437
4	275	342	245	139	300	275	123	250	245	236	197	757
5	154	312	250	171	290	275	162	255	260	165	185	250
6	203	306	169	245	280	189	270	275	169	348	205	152
7	207	300	152	374	155	214	270	250	177	265	201	354
8	128	285	148	290	177	158	295	241	223	245	181	672
9	144	152	255	275	306	260	324	145	236	223	139	567
10	144	158	250	189	306	214	324	135	232	209	270	620
11	144	300	241	132	582	223	201	330	265	152	374	560
12	138	306	255	275	402	232	148	300	227	91	367	290
13	307	354	165	280	318	189	265	270	162	155	354	94
14	419	300	145	285	181	169	295	285	114	209	348	205
15	426	241	214	290	189	123	290	306	177	209	209	416
16	413	155	250	275	336	218	360	132	201	214	111	765
17	478	193	245	126	342	223	181	120	214	218	270	552
18	170	395	181	142	312	209	260	409	209	145	265	367
19	163	270	300	318	354	227	155	402	209	86	360	250
20	199	241	173	290	374	209	280	402	152	152	360	108
21	141	201	132	300	173	139	402	342	114	209	354	270
22	177	209	169	255	185	111	330	275	165	193	197	324
23	426	152	245	354	360	336	330	132	214	201	50	324
24	388	336	218	117	236	360	381	129	209	218	255	318
25	402	300	241	152	312	306	197	280	209	201	342	318
26	185	280	236	318	306	265	155	270	232	94	342	165
27	185	255	236	290	295	245	290	295	142	169	342	91
28	312	388	148	285	155	177	232	360	102	193	318	114
29	295	189	285	285	---	145	295	336	145	209	223	312
30	342	162	250	290	---	444	241	135	197	189	52	318
31	306	---	285	181	---	430	---	145	---	189	300	---
TOTAL	8225	7681	6824	7690	8071	7216	7924	7765	5934	6051	7553	10837
MEAN	265	256	220	248	288	233	264	250	198	195	244	361
MAX	478	395	300	374	582	444	402	409	285	348	374	765
MIN	128	152	132	117	148	111	123	120	102	86	50	91
(*)	-20	+14	-2	-60	+31	+16	+2	+16	-19	-47	-169	-141
MEAN‡	245	270	218	188	319	249	266	266	179	148	75	220
CFSM‡	.64	.71	.57	.49	.84	.66	.70	.70	.47	.39	.20	.58
IN‡	.74	.79	.66	.57	.87	.76	.78	.81	.53	.45	.23	.65

CAL YR 1980 TOTAL 189491 MEAN 518 MAX 4030 MIN 106 MEAN‡ 514 CFSM‡ 1.35 IN‡ 18.42
WTR YR 1981 TOTAL 91771 MEAN 251 MAX 765 MIN 50 MEAN‡ 219 CFSM‡ .58 IN‡ 7.83

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02074000 SMITH RIVER AT EDEN, NC

LOCATION.--Lat 36°31'31", long 79°45'57", Rockingham County, Hydrologic Unit 03010103, on right bank at Eden, 0.3 mi (0.5 km) downstream from bridge on State Highway 14, 0.8 mi (1.3 km) upstream from bridge on Secondary Road 1714, 1.2 mi (1.9 km) south of Virginia-North Carolina State line, 1.3 mi (2.1 km) downstream from Stuart Creek, and 3.9 mi (6.3 km) upstream from mouth.

DRAINAGE AREA.--538 mi² (1,393 km²).

PERIOD OF RECORD.--October 1939 to current year. Prior to October 1970, published as "at Spray."

REVISED RECORDS.--WSP 1433: 1946.

GAGE.--Water-stage recorder. Datum of gage is 539.56 ft (164.458 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated since August 1950 by Philpott Lake (station 02071900) 40 mi (64 km) upstream, usable capacity, 6,325,000,000 ft³ (179.1 hm³). Some additional regulation by hydroelectric plant at Martinsville, Va., 18 mi (29 km) upstream. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--42 years, 621 ft³/s (17.59 m³/s), 15.68 in/yr (398 mm/yr), adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,600 ft³/s (1,290 m³/s) Aug. 15, 1940, gage height, 19.28 ft (5.877 m), from rating curve extended above 12,000 ft³/s (340 m³/s) on basis of computation of peak flow over dam 1.5 mi (2.4 km) downstream; minimum, 38 ft³/s (1.08 m³/s) Aug. 7, 1967; minimum daily, 46 ft³/s (1.30 m³/s) Aug. 14, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,050 ft³/s (58.1 m³/s) Sept. 16, gage height, 4.22 ft (1.286 m); minimum, 56 ft³/s (1.59 m³/s) Aug. 23, 24, gage height, 1.30 ft (0.396 m); minimum daily, 57 ft³/s (1.61 m³/s) Aug. 24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	481	338	277	276	226	219	537	295	184	213	186	406
2	381	204	317	408	399	291	502	297	288	229	116	434
3	369	241	292	264	405	289	426	180	408	215	83	426
4	345	392	320	183	356	294	386	162	327	327	227	641
5	201	452	307	223	355	384	264	266	303	212	194	725
6	288	381	238	362	349	349	332	280	322	357	193	232
7	229	373	204	343	265	277	394	291	289	333	201	128
8	180	296	240	334	209	219	380	265	202	275	277	698
9	185	204	319	335	279	274	423	282	277	247	115	612
10	183	241	316	250	342	303	476	174	260	219	142	598
11	182	289	306	199	863	297	406	181	268	232	344	587
12	171	354	298	271	813	299	245	359	252	123	350	577
13	202	374	232	381	482	298	241	323	279	93	356	113
14	485	386	199	380	340	288	379	313	158	210	347	99
15	473	275	258	377	252	139	382	331	131	220	380	323
16	480	296	235	338	322	243	477	353	228	221	110	936
17	465	277	308	253	373	272	296	150	231	227	100	799
18	419	438	335	169	396	283	380	143	218	247	321	467
19	298	362	300	241	527	284	216	443	235	110	267	424
20	265	308	233	339	929	283	322	580	258	89	335	145
21	189	304	181	362	458	265	490	531	110	216	354	118
22	181	229	229	345	299	181	412	421	144	202	367	339
23	376	205	299	350	381	301	395	375	227	204	85	337
24	473	341	225	277	449	581	489	180	214	218	57	327
25	496	495	289	181	400	522	418	163	210	337	314	326
26	307	359	306	253	391	459	231	317	259	120	322	354
27	215	282	230	331	376	414	216	321	203	131	321	108
28	402	475	196	341	306	301	282	433	120	205	327	103
29	349	289	245	331	---	220	350	454	142	210	356	295
30	380	230	378	336	---	628	303	374	200	205	83	307
31	436	---	366	245	---	890	---	190	---	192	72	---
TOTAL	10086	9600	8478	9288	11542	10347	11050	9427	6947	6639	7302	11984
MEAN	325	320	273	300	412	334	368	304	232	214	236	399
MAX	496	495	378	408	929	890	537	580	408	357	380	936
MIN	171	204	181	169	209	139	216	143	110	89	57	99
(*)	-20	+14	-2	-60	+31	+16	+2	+16	-19	-47	-169	-141

CAL YR 1980 TOTAL 251349 MEAN 687 MAX 9260 MIN 137 MEAN‡ 683 CFSM‡ 1.27 IN‡ 17.29
WTR YR 1981 TOTAL 112688 MEAN 309 MAX 936 MIN 57 MEAN‡ 277 CFSM‡ .51 IN‡ 6.92

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02074218 DAN RIVER NEAR MAYFIELD, NC

LOCATION.--Lat 36°32'29", long 79°36'21", Rockingham County, Hydrologic Unit 03010103, near right bank on downstream end of bridge pier on Secondary Road 1761, at North Carolina-Virginia State line, 2.2 mi (3.5 km) upstream from Whiteoak Creek, 3.0 mi (4.8 km) northwest of Mayfield, and at mile 81.0 (130.3 km).

DRAINAGE AREA.--1,778 mi^2 (4,605 km^2), revised.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 458.4 ft (139.7 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers).

REMARKS.--Records good except those for period of partial gage-height record, Sept. 7, 8, and those below 500 ft^3/s (14 m^3/s), which are fair. Diurnal fluctuation and regulation at low flow caused by mills and Talbott Reservoir (station 02067800) and Townes Reservoir (station 02067820) on the Dan River and Philpott Lake (station 02074000) on the Smith River. Duke Power Company gage-height and temperature telemeters at station.

AVERAGE DISCHARGE.--5 years, 2,159 ft^3/s (61.14 m^3/s), 16.49 in/yr (419 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,300 ft^3/s (1,060 m^3/s) Sept. 23, 1979, gage height, 27.31 ft (8.324 m); minimum, 197 ft^3/s (5.58 m^3/s) Aug. 25, 1981, gage height, 1.39 ft (0.424 m); minimum daily, 271 ft^3/s (7.67 m^3/s) Aug. 24, 31, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1972, reached a stage of 28.1 ft (8.56 m), from floodmarks, discharge, 40,000 ft^3/s (1,130 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,190 ft^3/s (232 m^3/s) Sept. 8, gage height, 12.2 ft (3.72 m), from graph based on partial gage-height record, no peak above base of 13,000 ft^3/s (370 m^3/s); minimum, 197 ft^3/s (5.58 m^3/s) Aug. 25, gage height, 1.39 ft (0.424 m); minimum daily, 271 ft^3/s (7.67 m^3/s) Aug. 24, 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBFP 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1160	1130	925	934	665	918	2750	922	794	471	456	429
2	1170	882	932	895	833	935	1930	904	872	553	365	831
3	954	798	953	900	1630	990	1580	767	1030	685	385	860
4	903	965	919	747	1280	949	1370	743	1010	955	512	1050
5	782	1370	903	641	982	1180	1170	801	896	1310	645	2370
6	770	1180	899	619	984	1440	1390	816	1060	1700	549	1490
7	875	1030	831	971	1020	1170	1520	859	2210	1190	587	2300
8	798	963	830	961	910	1010	1310	853	2000	1150	587	5510
9	714	854	860	847	915	944	1320	784	1120	863	515	2750
10	677	813	902	873	960	1010	1490	708	914	739	558	2010
11	627	832	923	674	2630	965	1430	741	844	695	591	1570
12	661	877	900	505	3580	952	1160	924	797	611	646	1310
13	711	881	864	691	2140	937	1100	918	764	561	631	773
14	873	911	824	894	1470	870	1150	816	800	503	611	677
15	883	905	809	1000	1210	850	1240	794	694	582	605	755
16	915	831	832	933	1100	799	1250	807	622	570	443	1700
17	898	829	874	836	1160	894	1200	706	640	563	359	3990
18	894	1150	885	621	1130	881	1100	666	650	542	441	2060
19	1450	1350	846	712	1500	879	1050	794	626	449	486	1230
20	1170	1090	868	939	4370	874	1150	1330	614	457	570	768
21	864	970	767	936	2590	823	1550	1800	583	469	580	654
22	713	902	662	1020	1560	795	1410	1420	591	532	563	715
23	742	854	773	991	1310	945	1240	1010	557	481	421	739
24	934	879	976	990	1420	1800	1630	768	559	520	271	711
25	1030	1400	855	725	1310	2100	1510	706	562	767	340	688
26	1250	1390	720	779	1230	1800	1120	811	562	832	495	690
27	1090	1110	660	915	1150	1440	1010	798	785	554	491	490
28	916	1260	830	880	1070	1230	1060	999	583	661	491	447
29	938	1240	980	877	---	1030	968	1380	407	761	482	518
30	1050	996	1000	872	---	1210	1030	1200	448	613	384	625
31	1280	---	959	826	---	4130	---	844	---	542	271	---
TOTAL	28692	30642	26761	26004	42109	36750	40188	28389	24594	21881	15331	40710
MEAN	926	1021	863	839	1504	1185	1340	916	820	706	495	1357
MAX	1450	1400	1000	1020	4370	4130	2750	1800	2210	1700	646	5510
MIN	627	798	660	505	665	795	968	666	407	449	271	429
(*)	-20	+14	-2	-60	+31	+16	+2	+16	-19	-47	-169	-141

CAL YR 1980 TOTAL 752795 MEAN 2057 MAX 23400 MIN 524 MEAN# 2053 CFSM# 1.15 IN# 15.65
WTR YR 1981 TOTAL 362051 MEAN 992 MAX 5510 MIN 271 MEAN# 960 CFSM# .54 IN# 7.33

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
# Adjusted for change in contents.

02074218 DAN RIVER NEAR MAYFIELD, NC--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968-70, 1972-73, 1977 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1976 to current year.
WATER TEMPERATURES: October 1976 to current year.

INSTRUMENTATION.--Temperature recorder since October 1977. Water-quality monitor since January 1981.

REMARKS.--Station is part of North Carolina district's Primary Accounting Network used to define stream-quality characteristics of the State's major streams. Water temperatures near left bank sometimes affected by heated releases from power plant located 8.4 mi (13.5 km) upstream. Releases from town of Eden's sewage treatment plant enter river on left bank approximately 10.2 mi (16.4 km) upstream.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 258 micromhos Aug. 9, 1981; minimum daily, 37 micromhos Oct. 10, 1976.
WATER TEMPERATURES: Maximum, 33.5°C June 16, 1981; minimum, 0.0°C Feb. 11, 12, 18, 19, 1979, Feb. 3, Mar. 3, 1980, Jan. 12, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 258 micromhos Aug. 9; minimum daily, 49 micromhos Sept. 8.
WATER TEMPERATURES: Maximum, 33.5°C June 16; minimum, 0.0°C Jan. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)
OCT											
15...	1130	724	152	6.7	14.0	5	10.1	22	0	5.6	2.0
JAN											
07...	1100	934	120	6.4	3.5	5	13.8	21	0	5.5	1.8
FEB											
09...	1045	895	98	7.1	3.0	--	--	--	--	--	--
APR											
02...	1100	2110	92	7.1	13.5	90	9.8	20	0	4.9	1.9
29...	1050	1200	130	6.4	20.0	10	8.7	23	0	5.8	2.1
JUN											
22...	1400	550	140	6.9	31.0	5	7.1	20	0	4.4	2.2
AUG											
26...	1030	436	365	6.5	24.0	15	7.5	23	0	5.6	2.2
SEP											
29...	1030	517	140	7.2	17.0	6	7.9	22	0	5.5	2.1

DATE	SODIUM, DISSOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	POTASSIUM, DISSOLVED (MG/L AS K)	BICARBONATE FET-FLD (MG/L AS HCO3)	CARBONATE FET-FLD (MG/L AS CO3)	ALKALINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DISSOLVED (MG/L AS CO2)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)
OCT											
15...	21	65	1.9	1.9	42	0	34	11	8.6	18	.1
JAN											
07...	12	53	1.1	1.4	35	0	29	52	6.9	13	.1
FEB											
09...	--	--	--	--	--	--	--	--	--	--	--
APR											
02...	13	56	1.3	2.0	28	0	23	3.6	8.1	14	<.1
28...	20	63	1.8	1.8	40	0	33	21	7.1	18	.1
JUN											
22...	23	68	2.2	2.4	37	0	30	7.5	7.4	28	.1
AUG											
26...	56	82	4.9	1.9	47	0	39	22	17	60	.1
SEP											
29...	17	60	1.6	2.1	50	0	41	5.0	8.7	10	.1

< Actual value is known to be less than the value shown.

02074218 DAN RIVER NEAR MAYFIELD, NC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	SOLIDS, DIS-SOLVED (TONS PER AC-FT)	SOLIDS, DIS-SOLVED (TONS PER DAY)	NITRO-GEN, NITRATE TOTAL (MG/L AS N)	NITRO-GEN, NITRITE TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 TOT. IN BOT MAT (MG/KG AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)
OCT 15...	17	93	93	.13	182	.31	.010	.32	.34	2.3	.030
JAN 07...	16	81	74	.11	294	.38	.010	.39	.43	--	.140
FEB 09...	--	--	--	--	--	--	--	--	--	--	--
APR 02...	15	160	75	.22	912	.33	.020	.35	.35	--	.070
APR 28...	15	85	86	.12	279	.30	.020	.32	.32	--	.010
JUN 22...	15	106	104	.14	157	.44	.010	.45	.46	--	.060
AUG 26...	10	195	172	.27	230	.53	.040	.57	.55	--	.140
SEP 29...	13	84	85	.11	117	--	<.010	.25	.23	--	.090

< Actual value is known to be less than the value shown.

DATE	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS NH4)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS NH4)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N)	NITRO-GEN, AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, NH4 + ORG. TOT IN BOT MAT (MG/KG AS N)	NITRO-GEN, TOTAL (MG/L AS N)
OCT 15...	.100	.04	.13	.30	.40	.33	.00	.50	630	.65
JAN 07...	.170	.17	.22	.26	.11	.40	.12	.28	--	.79
FEB 09...	--	--	--	--	--	--	--	--	--	--
APR 02...	.090	--	.12	.48	.45	.55	.01	.54	--	.90
APR 28...	--	--	--	.39	--	.40	.30	.10	--	.72
JUN 22...	.060	--	.08	.46	.81	.52	.00	.87	--	.97
AUG 26...	.120	--	.15	.34	.39	.48	.00	.51	--	1.1
SEP 29...	.100	--	.13	.47	.31	.56	.15	.41	--	.81

DATE	NITRO-GEN, TOTAL (MG/L AS NO3)	NITRO-GEN, TOT IN BOT-TOM MA-TERIAL (MG/KG AS N)	NITRO-GEN DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHATE, TOTAL (MG/L AS PO4)	PHOS-PHORUS TOTAL (MG/L AS PO4)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	PHOS-PHORUS, ORTHO, TOTAL (MG/L AS P)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	PHOS-PHATE, ORTHO, DIS-SOLVED (MG/L AS PO4)
OCT 15...	2.9	632	.84	.200	.52	.61	.140	.170	.140	.43
JAN 07...	3.5	--	.71	.160	.34	.49	.130	.110	.120	.37
FEB 09...	--	--	--	--	--	--	--	--	--	--
APR 02...	4.0	--	.89	.130	--	.40	.090	.060	.100	.31
APR 28...	3.2	--	.42	.160	--	.49	.110	.110	.100	.31
JUN 22...	4.3	--	1.3	.210	--	.64	.200	.180	.180	.55
AUG 26...	4.6	--	1.1	.420	--	1.3	.400	.410	.390	1.2
SEP 29...	3.6	--	.64	.140	--	.43	.130	.100	.110	.34

02074218 DAN RIVER NEAR MAYFIELD, NC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	PHOS-PHORUS, TOTAL IN BOT. MAT. (MG/KG AS P)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU)
OCT										
15...	74	0	<10	10	9	1	<10	<10	11	2
JAN										
07...	--	--	--	20	15	5	--	--	10	5
FEB										
09...	--	--	--	--	--	--	--	--	--	--
APR										
02...	--	--	--	30	30	0	--	--	14	10
28...	--	--	--	10	10	0	--	--	8	2
JUN										
22...	--	--	--	20	20	0	--	--	11	5
AUG										
26...	--	--	--	10	--	<1	--	--	17	4
SEP										
29...	--	--	--	10	5	5	--	--	6	1

< Actual value is known to be less than the value shown.

DATE	COPPER, DIS-SOLVED (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, SUS-PENDED RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)
OCT										
15...	9	<10	1100	970	130	3600	1	0	2	<10
JAN										
07...	5	--	660	550	110	--	9	5	4	--
FEB										
09...	--	--	--	--	--	--	--	--	--	--
APR										
02...	4	--	2500	2500	0	--	11	11	0	--
28...	6	--	1200	1000	180	--	52	50	2	--
JUN										
22...	6	--	840	600	240	--	4	4	0	--
AUG										
26...	13	--	580	440	140	--	10	8	2	--
SEP										
29...	5	--	1000	830	170	--	1	0	1	--

< Actual value is known to be less than the value shown.

DATE	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)
OCT								
15...	300	.00	0	20	10	6	31	7.5
JAN								
07...	--	--	--	20	20	0	--	2.3
FEB								
09...	--	--	--	--	--	--	--	--
APR								
02...	--	--	--	30	30	0	--	3.0
28...	--	--	--	30	--	<4	--	3.8
JUN								
22...	--	--	--	10	--	<4	--	2.9
AUG								
26...	--	--	--	20	10	10	--	4.0
SEP								
29...	--	--	--	20	10	10	--	--

< Actual value is known to be less than the value shown.

02074218 DAN RIVER NEAR MAYFIELD, NC--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C)	CARBON, ORGANIC TOT. IN BOTTOM MAT. (G/KG AS C)	CARBON, INOR- GANIC, TOT IN BOT MAT (G/KG AS C)	CARBON, INORG + ORGANIC TOT. IN BOT MAT (G/KG AS C)	METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M	LENGTH OF EXPO- SURE (DAYS)
OCT								
15...	.7	4.6	.0	4.6	.00	--	--	--
JAN								
07...	.8	--	--	--	.00	--	--	--
FEB								
09...	--	--	--	--	--	2.52	1.89	20
APR								
02...	.7	--	--	--	--	--	--	--
28...	.8	--	--	--	.00	--	--	--
JUN								
22...	.4	--	--	--	.00	--	--	--
AUG								
26...	.5	--	--	--	.10	--	--	--
SEP								
29...	.6	--	--	--	.10	--	--	--

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS)	SEDI- MENT, SUS- PENDED (MG/L)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
OCT					
15...	1130	724	16	31	78
JAN					
07...	1100	934	16	40	47
APR					
02...	1100	2110	72	410	71
28...	1050	1200	35	113	60
JUN					
22...	1400	550	21	31	89
AUG					
26...	1030	436	8	9.4	76
SEP					
29...	1030	517	12	17	84

02074218 DAN RIVER NEAR MAYFIELD, NC--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	111	74	107	124	110	91	142	175	131	231	186
2	105	128	80	84	122	128	116	152	189	104	192	146
3	178	97	96	87	98	124	105	160	161	106	180	158
4	168	100	108	78	85	111	113	157	158	98	211	119
5	159	107	114	70	115	126	99	172	148	90	186	82
6	109	95	102	78	121	123	91	158	162	67	206	63
7	131	140	102	119	120	124	97	162	87	73	216	70
8	110	98	129	188	83	122	130	158	113	98	227	49
9	128	97	110	153	128	113	140	171	108	130	258	68
10	172	100	100	153	133	120	138	186	137	143	184	76
11	154	109	108	121	95	111	134	168	169	179	227	94
12	193	98	114	136	83	143	104	209	177	170	180	126
13	206	104	100	144	91	137	90	133	167	170	232	102
14	133	135	96	137	110	135	100	133	176	119	187	106
15	102	135	127	126	96	136	115	143	171	172	195	114
16	108	98	112	118	108	134	139	142	111	201	204	207
17	101	94	94	143	126	119	131	172	196	206	148	89
18	107	103	128	134	118	132	111	104	200	202	134	81
19	72	105	133	112	114	133	150	107	184	191	200	101
20	93	102	99	157	86	139	86	138	188	139	217	112
21	90	110	97	118	95	128	82	161	209	144	215	100
22	92	111	114	140	84	156	91	112	130	212	213	131
23	128	102	120	114	98	170	108	121	133	187	231	123
24	214	119	83	141	112	138	111	129	186	228	164	141
25	101	100	79	123	103	119	120	158	183	231	167	152
26	88	88	79	111	110	101	97	184	200	145	231	145
27	83	93	73	154	138	105	110	148	146	160	233	224
28	73	82	73	125	127	106	108	149	153	120	214	128
29	105	69	67	135	---	116	137	131	146	147	230	133
30	117	72	81	141	---	106	151	112	139	186	229	193
31	89	---	93	116	---	85	---	133	---	207	183	---
MEAN	124	103	99	125	109	124	113	149	160	153	204	121

WTR YR 1981 MEAN 132 MAX 258 MIN 49

02074218 DAN RIVER NEAR MAYFIELD, NC--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	19.5	19.0	13.0	12.5	7.0	7.0	7.5	6.0	5.5	3.0	12.5	10.5
2	20.0	19.0	13.0	12.5	10.0	7.0	7.5	6.0	6.5	4.0	14.0	11.0
3	20.0	19.5	12.5	12.0	9.0	7.5	6.5	5.0	4.5	2.0	13.5	11.0
4	19.5	18.5	12.5	12.5	9.0	6.5	5.5	2.5	2.5	1.0	11.5	8.5
5	18.5	17.0	12.5	12.5	8.5	6.5	4.0	2.5	3.0	2.0	8.5	7.5
6	17.0	16.5	12.5	10.0	8.0	6.5	7.5	3.5	3.5	1.5	9.5	7.0
7	17.5	16.5	11.5	9.0	8.5	7.0	5.0	1.5	4.5	2.0	9.5	7.5
8	17.5	16.0	12.0	9.5	11.0	8.0	3.5	1.0	4.5	3.5	9.0	6.5
9	19.0	16.5	13.0	11.0	11.5	9.5	4.0	2.5	5.5	2.5	11.0	7.0
10	19.5	18.5	14.0	12.0	12.0	11.0	3.0	1.5	4.5	3.0	11.0	8.0
11	19.5	19.0	13.0	11.0	11.0	9.5	3.0	2.0	6.0	4.0	11.0	8.5
12	19.0	17.0	11.0	9.0	10.0	7.5	5.5	.0	5.5	4.0	12.0	8.5
13	17.0	16.0	10.5	10.5	7.5	5.5	5.5	3.0	---	---	12.5	9.0
14	17.0	16.0	10.5	9.0	6.0	5.0	4.0	2.0	---	---	12.0	9.5
15	16.5	15.0	9.0	9.0	8.0	4.5	3.5	1.5	---	---	11.5	8.5
16	16.5	16.0	9.0	9.0	8.5	6.5	3.5	1.5	---	---	11.0	8.5
17	16.5	16.0	10.5	9.0	8.5	7.0	3.5	2.0	---	---	11.0	8.0
18	17.0	16.5	10.5	9.0	7.0	5.5	5.0	2.5	---	---	11.5	10.0
19	18.0	17.0	9.0	8.0	7.5	5.5	5.5	2.5	---	---	11.0	9.5
20	18.0	17.0	8.5	7.0	7.0	4.5	4.5	2.0	---	---	10.0	8.0
21	17.5	16.5	7.5	6.0	4.5	3.5	5.0	3.0	---	---	9.5	6.5
22	17.0	16.5	7.5	5.5	5.5	3.0	5.0	3.0	---	---	8.0	6.5
23	17.0	15.5	7.0	6.0	5.0	3.0	5.5	3.5	---	---	6.5	5.5
24	15.5	14.5	8.5	6.0	3.0	2.0	5.0	3.0	11.5	11.0	8.0	5.5
25	14.5	14.0	9.0	7.5	3.0	1.0	5.5	4.0	11.5	9.0	9.5	7.5
26	14.0	12.5	8.5	7.0	4.5	.5	7.5	4.0	11.5	9.5	11.0	8.5
27	13.0	12.0	8.5	6.5	4.0	2.0	7.0	5.5	12.0	8.5	11.5	10.0
28	13.5	12.5	7.0	7.0	4.0	2.5	7.0	5.5	11.5	9.5	12.0	9.5
29	13.5	13.5	7.0	7.0	5.5	2.5	6.5	4.5	---	---	13.0	10.5
30	13.5	13.0	7.0	7.0	6.5	4.0	6.0	4.5	---	---	14.5	12.0
31	13.0	12.5	---	---	7.0	6.0	6.0	4.0	---	---	14.0	13.0
MONTH	20.0	12.0	14.0	5.5	12.0	.5	7.5	.0	12.0	1.0	14.5	5.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	14.5	13.5	20.5	19.0	25.0	24.0	26.5	25.0	28.0	25.0	27.5	22.0
2	16.0	13.5	19.5	17.5	25.0	22.5	25.0	24.5	27.5	24.5	27.0	25.0
3	16.0	14.0	19.5	16.0	24.5	23.0	24.5	23.0	30.0	25.5	26.0	25.0
4	17.0	15.0	20.0	16.0	26.0	23.0	23.5	22.0	31.0	28.0	25.5	22.5
5	16.5	16.0	20.5	17.0	27.5	25.0	24.5	22.5	31.0	29.5	22.5	21.0
6	16.5	14.5	21.0	19.0	27.0	25.0	26.5	23.5	31.0	30.5	22.5	21.5
7	16.0	13.0	21.0	19.5	25.0	23.5	28.0	25.0	31.0	29.0	23.5	21.0
8	16.5	13.5	20.5	17.5	26.0	22.5	28.5	26.5	30.0	29.0	22.5	21.0
9	16.0	15.0	19.0	17.0	29.0	25.5	31.5	27.0	31.0	28.5	22.0	21.0
10	18.0	14.5	17.5	16.5	30.5	28.0	32.5	29.5	31.0	28.5	21.5	20.0
11	19.0	16.5	22.0	17.0	31.0	28.5	32.0	30.5	31.0	29.5	21.0	20.0
12	20.5	18.0	22.5	20.0	30.5	28.0	31.5	29.5	30.0	28.5	21.0	20.0
13	19.5	18.5	21.5	18.5	29.0	27.0	32.5	30.0	29.0	26.5	24.0	20.0
14	19.0	16.5	21.5	18.0	30.5	27.5	32.0	30.0	28.0	26.0	26.5	22.5
15	19.5	16.5	22.0	19.5	33.0	28.0	31.5	29.0	28.0	25.0	26.5	24.0
16	19.5	16.5	21.5	19.0	33.5	30.5	30.0	29.0	29.0	27.5	24.5	23.0
17	18.5	17.0	21.5	19.0	32.5	30.5	30.5	28.5	28.0	26.0	23.0	21.0
18	20.5	17.5	22.0	19.5	30.5	28.0	30.0	28.5	26.5	22.0	21.5	20.0
19	19.5	16.5	21.0	17.5	29.5	28.0	29.5	27.5	23.5	22.0	20.5	18.5
20	19.0	17.5	18.0	15.5	29.0	27.0	30.0	27.5	23.0	21.0	20.0	17.0
21	18.5	18.0	17.0	14.0	30.5	27.0	33.0	29.0	22.5	19.5	20.0	17.0
22	18.0	15.5	19.0	16.0	32.0	28.5	31.5	29.5	22.5	20.0	20.0	17.5
23	20.0	17.5	21.5	18.0	32.0	29.5	31.0	29.0	24.0	19.5	20.0	18.0
24	19.5	18.0	23.0	19.0	31.5	29.5	30.5	28.5	27.0	20.5	19.0	16.5
25	18.0	15.5	25.5	21.0	31.5	29.0	28.5	26.5	28.0	18.0	18.0	15.5
26	18.0	15.0	26.5	24.0	30.0	28.5	29.0	26.0	26.5	23.5	18.5	15.5
27	20.5	16.0	26.0	23.5	29.0	26.0	32.0	27.0	26.0	23.5	20.0	16.0
28	23.5	19.0	23.5	22.5	27.5	24.0	31.5	30.0	26.5	23.0	20.5	17.0
29	23.5	22.0	22.5	21.0	29.5	24.0	31.5	29.0	24.0	21.0	20.5	17.5
30	22.5	20.0	23.5	21.0	28.0	26.5	31.0	28.0	23.5	21.5	19.5	17.0
31	---	---	25.5	22.0	---	---	28.5	26.0	26.5	22.0	---	---
MONTH	23.5	13.0	26.5	14.0	33.5	22.5	33.0	22.0	31.0	18.0	27.5	15.5
YEAR	33.5	.0										

02074218 DAN RIVER NEAR MAYFIELD, NC--Continued

PHYTOPLANKTON ANALYSES, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	OCT 15,80	JAN 7,81	APR 2,81	JUN 22,81	AUG 26,81
TIME	1130	1100	1100	1400	1030
TOTAL CELLS/ML	30000	300000	41000	310	14
DIVERSITY: DIVISION	0.1	0.0	0.3	1.6	0.0
.CLASS	0.1	0.0	0.3	1.6	0.0
..ORDER	0.1	0.0	0.3	2.1	0.0
...FAMILY	0.1	0.0	0.3	2.2	0.0
....GENUS	0.1	0.0	0.3	2.2	0.0

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....DICTYOSPHAERIUM	*	0	--	-	*	0	--	-	--	-
....OOCYSTIS	*	0	--	-	--	-	--	-	--	-
....SELENASTRUM	*	0	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	*	0	--	-	--	-	77#	25	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	*	0	--	-	*	0	26	8	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....COSMARIUM	--	-	--	-	*	0	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	*	0	*	0	--	-	26	8	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	--	-	*	0	--	-	--	-
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	--	-	13	4	--	-
...FRAGILARIACEAE										
....SYNEDRA	--	-	--	-	370	1	--	-	--	-
...NAVICULACEAE										
....GYROSIGMA	*	0	--	-	--	-	--	-	--	-
....NAVICULA	*	0	*	0	370	1	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	*	0	--	-	230	1	39	13	14#	100
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	*	0	*	0	--	-	130#	42	--	-
..HORMOGONALES										
...NOSTOCACEAE										
....APHANIZOMENON	--	-	--	-	*	0	--	-	--	-
...OSCILLATORIACEAE										
....OSCILLATORIA	29000#	99	300000#	100	40000#	96	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	*	0	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

02074500 SANDY RIVER NEAR DANVILLE, VA

LOCATION.--Lat 36°37'10", long 79°30'16", Pittsylvania County, Hydrologic Unit 03010103, on right bank 200 ft (61 m) downstream from Hickory Forest Creek, 400 ft (122 m) upstream from bridge on State Highway 863 between Callahans Store and Mount Cross, 5.5 mi (8.8 km) northwest of western corporate limits of Danville, and 5.8 mi (9.3 km) upstream from mouth.

DRAINAGE AREA.--112 mi² (290 km²).

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 972: 1930-41. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 460.38 ft (140.324 m) National Geodetic Vertical Datum of 1929. Prior to June 26, 1942, at site 1,200 ft (366 m) downstream at datum 5.57 ft (1.698 m) lower.

REMARKS.--Records good except those for period of no gage-height record, June 6 to July 15, which are fair. Diurnal fluctuation at low flow caused by small mill above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--52 years, 106 ft³/s (3.002 m³/s), 12.85 in/yr (326 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,000 ft³/s (651 m³/s) Aug. 14, 1940, gage height, 14.8 ft (4.51 m), present datum, from floodmarks, from rating curve extended above 11,000 ft³/s (310 m³/s); minimum, 3 ft³/s (0.08 m³/s) Sept. 29, 1930, gage height, 0.40 ft (0.122 m), site and datum then in use; minimum daily, 8 ft³/s (0.23 m³/s) Aug. 29, 31, Sept. 1, 2, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 934 ft³/s (26.5 m³/s) Feb. 20, gage height, 3.66 ft (1.116 m), no peak above base of 1,500 ft³/s (42 m³/s); minimum daily, 12 ft³/s (0.34 m³/s) Aug. 26-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	74	61	64	61	60	71	107	62	45	35	21	19
2	55	58	64	60	96	69	94	55	48	40	20	18
3	52	56	63	58	88	66	79	52	64	60	22	19
4	52	68	63	58	82	69	73	51	54	120	24	110
5	50	81	61	53	78	105	85	51	46	180	22	73
6	53	63	61	54	75	83	94	49	50	90	20	41
7	50	60	61	53	70	75	75	52	69	75	22	46
8	50	58	61	52	72	69	73	49	60	66	22	36
9	50	58	61	51	63	66	79	46	52	60	22	30
10	48	58	64	51	63	66	91	51	47	44	20	27
11	50	55	63	50	278	64	79	55	44	35	19	26
12	47	55	61	51	207	62	73	49	43	33	19	24
13	44	55	61	52	114	62	69	46	75	34	19	23
14	45	55	61	53	96	60	69	45	65	32	18	22
15	47	58	60	53	83	57	73	44	45	29	17	25
16	47	60	60	54	79	57	67	42	40	26	16	103
17	47	60	60	55	76	57	66	41	39	29	15	103
18	48	88	58	56	74	55	69	42	37	26	14	46
19	140	71	58	60	142	55	64	67	40	24	15	33
20	66	66	58	65	611	55	83	119	52	26	20	29
21	56	63	60	71	199	55	83	91	45	30	18	28
22	53	63	58	74	131	55	69	60	39	24	15	27
23	52	61	57	66	114	79	69	52	35	22	14	26
24	52	71	56	61	105	98	103	46	34	35	14	25
25	64	81	54	58	89	79	75	44	36	42	13	25
26	69	69	53	60	81	71	67	41	55	31	12	25
27	58	68	58	61	75	66	66	42	42	27	12	25
28	56	78	60	61	73	64	60	83	37	29	12	25
29	56	71	63	58	---	62	57	67	35	27	12	23
30	74	66	64	54	---	122	57	51	32	22	14	24
31	72	---	64	53	---	160	---	48	---	21	23	---
TOTAL	1777	1935	1870	1777	3374	2234	2268	1693	1405	1374	546	1106
MEAN	57.3	64.5	60.3	57.3	121	72.1	75.6	54.6	46.8	44.3	17.6	36.9
MAX	140	88	64	74	611	160	107	119	75	180	24	110
MIN	44	55	53	50	60	55	57	41	32	21	12	19
CFSM	.51	.58	.54	.51	1.08	.64	.68	.49	.42	.40	.16	.33
IN.	.59	.64	.62	.59	1.12	.74	.75	.56	.47	.46	.18	.37

CAL YR 1980 TOTAL 37455 MEAN 102 MAX 2490 MIN 34 CFSM .91 IN 12.44
WTR YR 1981 TOTAL 21359 MEAN 58.5 MAX 611 MIN 12 CFSM .52 IN 7.09

02075000 DAN RIVER AT DANVILLE, VA

LOCATION.--Lat 36°35'15", long 79°22'55", Danville City, Hydrologic Unit 03010104, on left bank 50 ft (20 m) downstream from Southern Railway bridge, 1,000 ft (300 m) upstream from Fall Creek, and at mile 62.7 (100.9 km).

DRAINAGE AREA.--2,050 mi² (5,310 km²), approximately.

PERIOD OF RECORD.--August 1934 to current year. Gage-height records collected in this vicinity 1890-1934, at same site 1934-49, and at Main Street Bridge, 0.25 mi (0.40 km) upstream 1949-68, are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 972: 1936.

GAGE.--Water-stage recorder. Datum of gage is 379.29 ft (115.608 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation caused by cotton mills above station. Since August 1950, flow regulated by Philpott Lake (station 02071900) 74.7 mi (120.2 km) upstream. Gage-height telemeters at station. Corps of Engineers satellite telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--47 years, 2,323 ft³/s (65.79 m³/s), 15.39 in/yr (391 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 75,000 ft³/s (2,120 m³/s) Aug. 15, 1940, gage height, 20.96 ft (6.389 m); maximum gage height, 21.34 ft (6.504 m) June 22, 1972, backwater from debris; minimum discharge, 11 ft³/s (0.31 m³/s) Sept. 5, 1966, gage height, 1.18 ft (0.360 m); minimum daily, 110 ft³/s (3.12 m³/s) Sept. 5, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,230 ft³/s (205 m³/s) Sept. 8, gage height, 6.37 ft (1.942 m); minimum, 230 ft³/s (6.51 m³/s) Aug. 4, gage height, 1.59 ft (0.485 m); minimum daily, 294 ft³/s (8.33 m³/s) Aug. 4, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1250	1340	988	1040	700	1110	3020	1170	910	531	541	336
2	1410	1090	985	910	856	1100	2190	1140	928	631	587	762
3	1160	870	1020	1040	1650	1160	1830	1010	1050	879	548	825
4	981	967	980	807	1470	1130	1620	940	1150	1260	294	1120
5	981	1450	970	684	1050	1380	1460	944	985	1230	762	2240
6	834	1430	960	618	1010	1600	1610	977	1080	2080	548	1790
7	940	1160	910	910	1060	1360	1760	1040	1830	1380	626	1480
8	918	1070	900	1090	976	1220	1560	1030	2370	1220	650	5620
9	785	998	940	910	974	1120	1580	984	1260	950	634	2700
10	738	861	970	950	1020	1170	1720	938	1010	807	571	2010
11	686	830	1000	745	2960	1120	1670	943	906	745	571	1560
12	686	876	960	684	3870	1110	1470	992	873	684	667	1290
13	745	920	920	665	2760	1100	1340	1070	816	650	650	948
14	775	985	880	879	1820	1020	1350	975	859	533	642	706
15	957	978	880	1060	1460	1020	1450	945	797	626	634	665
16	980	906	900	1030	1350	952	1440	953	662	626	618	1230
17	968	905	920	920	1380	1040	1470	897	684	618	496	3800
18	1050	1180	950	690	1340	1020	1290	814	700	602	354	2310
19	2020	1510	940	700	1800	1020	1350	888	684	571	594	1300
20	1540	1270	930	961	5010	1010	1440	1480	690	564	564	955
21	1050	1050	844	1030	3360	967	1720	1940	664	533	626	704
22	785	983	753	1110	1990	963	1720	1650	651	587	602	646
23	716	887	789	1080	1610	1150	1520	1240	611	541	594	751
24	996	976	1080	1090	1660	1950	1900	962	619	594	342	726
25	1070	1400	940	801	1520	2200	1770	838	610	789	294	695
26	1380	1650	807	826	1410	1910	1470	873	591	991	481	701
27	1360	1260	736	944	1340	1570	1260	889	772	659	526	655
28	969	1280	871	936	1270	1370	1240	1110	700	610	518	489
29	1050	1460	1100	930	---	1190	1170	1400	510	862	518	468
30	1160	1120	1150	931	---	1410	1230	1330	530	693	602	631
31	1410	---	1060	881	---	3940	---	1030	---	602	406	---
TOTAL	32350	33662	29033	27852	48676	41382	47620	33392	26502	24648	17060	40113
MEAN	1044	1122	937	898	1738	1335	1587	1077	883	795	550	1337
MAX	2020	1650	1150	1110	5010	3940	3020	1940	2370	2080	762	5620
MIN	686	830	736	618	700	952	1170	814	510	531	294	336
(*)	-20	+14	-2	-60	+31	+16	+2	+16	-19	-47	-169	-141

CAL YR 1980 TOTAL 831562 MEAN 2272 MAX 24400 MIN 511 MEAN# 2268 CFSM# 1.11 IN# 15.06
WTR YR 1981 TOTAL 402290 MEAN 1102 MAX 5620 MIN 294 MEAN# 1070 CFSM# .52 IN# 7.09

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
# Adjusted for change in contents.

02075500 DAN RIVER AT PACES, VA

LOCATION.--Lat 36°38'32", long 79°05'23", Halifax County, Hydrologic Unit 03010104, on right bank 100 ft (30 m) upstream from bridge on State Highway 658, 0.5 mi (0.8 km) southeast of Paces, 0.5 mi (0.8 km) upstream from Big Toby Creek, 2.7 mi (4.3 km) upstream from Birch Creek, and at mile 36.0 (57.9 km).

DRAINAGE AREA.--2,550 mi² (6,600 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 322.48 ft (98.292 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Diurnal fluctuation caused by cotton mills at Danville. Since August 1950, flow regulated by Philpott Lake (station 02071900) 101.4 mi (163.2 km) upstream. Gage-height telemeters at station.

AVERAGE DISCHARGE.--30 years (water years 1952-81), 2,708 ft³/s (76.69 m³/s), 14.42 in/yr (366 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64,800 ft³/s (1,840 m³/s) June 23, 1972, gage height, 33.15 ft (10.104 m), from rating curve extended above 32,000 ft³/s (910 m³/s); minimum, 193 ft³/s (5.47 m³/s) Sept. 4, 1956, gage height, 1.71 ft (0.521 m); minimum daily, 244 ft³/s (6.91 m³/s) Sept. 4, 1956.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 16, 1940, reached a stage of 32.3 ft (9.85 m), from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,920 ft³/s (224 m³/s) Feb. 20, gage height, 12.38 ft (3.773 m); minimum, 362 ft³/s (10.3 m³/s) Aug. 5, gage height, 1.94 ft (0.591 m); minimum daily, 402 ft³/s (11.4 m³/s) Aug. 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1070	1560	1270	1180	929	1490	4330	1340	1100	575	684	513
2	1480	1350	1200	1130	925	1370	2780	1250	1050	597	592	505
3	1390	1080	1210	1100	1430	1380	2230	1210	1150	798	661	908
4	1160	1030	1170	1060	1920	1380	1920	1060	1300	3690	597	1010
5	1060	1430	1160	827	1420	1590	1780	1030	1240	3150	591	1560
6	935	1710	1130	743	1190	1900	1750	1090	1170	2830	699	2920
7	925	1430	1110	795	1220	1900	1870	1110	1610	2610	961	1930
8	1020	1260	1050	1150	1330	1610	1860	1150	2670	1600	734	4640
9	923	1170	1060	1090	1190	1430	1720	1130	1820	1400	719	3800
10	838	1060	1120	1040	1160	1380	1900	1090	1330	1120	704	2730
11	803	1020	1160	978	3190	1410	1910	1050	1140	952	724	2050
12	745	1020	1160	787	5350	1360	1800	1090	1050	868	735	1690
13	752	1070	1130	627	4450	1340	1560	1190	1050	783	851	1450
14	804	1080	1080	881	2540	1320	1470	1170	1050	753	765	917
15	964	1140	1020	1060	1960	1240	1590	1070	984	648	723	806
16	996	1130	1020	1170	1630	1190	1610	1040	879	729	703	1080
17	1030	1060	1030	1080	1510	1190	1610	1040	768	734	825	3070
18	1020	1280	1070	944	1530	1240	1510	925	778	719	551	3520
19	1710	1600	1100	747	1760	1230	1490	905	808	690	497	2050
20	2010	1620	1060	863	6290	1230	1490	1310	818	662	679	1420
21	1370	1330	1030	1150	6060	1200	1880	2250	783	768	679	956
22	1030	1200	880	1250	3300	1160	1950	2220	724	657	704	817
23	855	1110	853	1300	2310	1290	1740	1710	724	681	663	837
24	869	1170	993	1220	2060	1920	1940	1310	681	639	579	873
25	1150	1540	1160	1170	1950	2760	2020	1050	681	1090	424	837
26	1310	1960	981	900	1780	2650	1800	946	667	1120	402	807
27	1490	1670	844	962	1670	2140	1450	1050	657	1050	550	810
28	1270	1490	830	1100	1580	1820	1340	1100	868	739	560	648
29	1120	1680	1150	1070	---	1610	1370	1370	710	830	559	557
30	1230	1500	1240	1060	---	1490	1300	1610	553	1010	579	590
31	1430	---	1290	1020	---	2760	---	1390	---	776	694	---
TOTAL	34759	39750	33561	31454	63634	48980	54970	38256	30823	35268	20388	46301
MEAN	1121	1325	1083	1015	2273	1580	1832	1234	1027	1138	658	1543
MAX	2010	1960	1290	1300	6290	2760	4330	2250	2670	3690	961	4640
MIN	745	1020	830	627	925	1160	1300	905	553	575	402	505
(*)	-20	+14	-2	-60	+31	+16	+2	+16	-19	-47	-169	-141

CAL YR 1980 TOTAL 969331 MEAN 2648 MAX 22300 MIN 581 MEAN‡ 2644 CFSM‡ 1.04 IN‡ 14.12
WTR YR 1981 TOTAL 478144 MEAN 1310 MAX 6290 MIN 402 MEAN‡ 1278 CFSM‡ .50 IN‡ 6.80

* Change in contents, equivalent in cubic feet per second, in Philpott Lake; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

02075500 DAN RIVER AT PACES, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1954 to September 1956.
WATER TEMPERATURES: January 1954 to September 1956.
SUSPENDED-SEDIMENT DISCHARGE: January 1954 to current year.

REMARKS.--Daily sediment records based on once-weekly sediment samples and water-discharge hydrograph.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (NTU)	OXYGEN, DISSOLVED (MG/L)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)
DEC												
02...	1130	1210	134	6.9	7.0	3.3	12.2	53	41	24	2	6.1
JAN												
06...	1215	730	134	7.3	1.5	1.6	14.5	K327	K9	22	0	5.5
MAR												
30...	1115	1460	122	7.5	13.0	5.3	9.7	80	74	23	0	5.6
MAY												
12...	1115	1120	170	7.3	18.5	16	7.3	160	120	25	0	5.9
JUN												
09...	1400	1740	--	--	--	--	--	--	--	--	--	--
JUL												
29...	1215	843	230	7.0	28.5	36	5.0	140	160	26	0	6.0
SEP												
16...	1200	1080	144	6.7	23.0	65	6.4	K9700	5100	23	0	5.7

K Result based on colony count outside optimal range.

DATE	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)
DEC												
02...	2.1	14	2.1	22	8.2	16	.1	18	95	83	.59	.58
JAN												
06...	2.0	16	1.8	27	8.4	12	.1	17	84	81	.33	.34
MAR												
30...	2.1	13	1.8	24	8.0	12	.1	16	68	75	.39	.39
MAY												
12...	2.4	22	1.9	28	12	18	.2	16	95	97	.68	.65
JUN												
09...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
29...	2.6	37	3.1	40	15	31	.2	15	150	137	.61	.61
SEP												
16...	2.1	18	3.1	27	16	14	.2	12	105	90	.51	.50

02075500 DAN RIVER AT PACES, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)
DEC												
02...	.090	.090	.29	.29	.86	.87	.160	.120	2	2	100	30
JAN												
06...	.150	.160	.45	.28	.76	.62	.180	.160	--	--	--	--
MAR												
30...	.080	.060	.53	.11	.92	.50	.170	.100	<1	<1	<50	<50
MAY												
12...	.090	.110	.83	.76	1.5	1.4	.260	.160	--	--	--	--
JUN												
09...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
29...	.030	.050	.89	.48	1.5	1.1	.330	.180	4	4	100	40
SEP												
16...	.060	.030	.89	.41	1.4	.91	.280	.120	5	3	100	100

< Actual value is known to be less than the value shown.

DATE	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)
DEC												
02...	1	1	10	<10	<1	<1	21	4	890	180	8	<1
JAN												
06...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
30...	7	<1	10	<10	<1	<1	6	3	1100	220	1	1
MAY												
12...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
09...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
29...	3	<1	10	<10	3	3	11	7	2300	130	6	3
SEP												
16...	2	1	20	10	3	<1	10	5	3300	130	8	3

< Actual value is known to be less than the value shown.

02075500 DAN RIVER AT PACES, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)
DEC												
02...	20	9	.1	<.1	6	1	<1	<1	<1	<1	60	4
JAN												
06...	--	--	--	--	--	--	--	--	--	--	--	--
MAR												
30...	30	20	.1	.1	3	1	<1	<1	<1	<1	40	10
MAY												
12...	--	--	--	--	--	--	--	--	--	--	--	--
JUN												
09...	--	--	--	--	--	--	--	--	--	--	--	--
JUL												
29...	80	20	.6	.1	5	4	<1	<1	<1	<1	30	20
SEP												
16...	140	<10	.9	.9	6	3	1	<1	<1	<1	50	10

< Actual value is known to be less than the value shown.

DATE	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM
DEC												
02...	--	3.0	.4	9700	13	--	--	--	--	70	--	--
JAN												
06...	4.3	--	--	--	9	--	--	--	--	78	--	--
MAR												
30...	--	2.9	.4	3000	48	--	--	--	--	78	--	--
MAY												
12...	4.1	--	--	1300	47	--	--	--	--	91	--	--
JUN												
09...	--	--	--	--	323	88	93	96	96	98	99	100
JUL												
29...	--	5.9	.7	1100	79	--	--	--	--	90	--	--
SEP												
16...	--	3.6	1.5	1300	124	--	--	--	--	86	--	--

02075500 DAN RIVER AT PACES, VA--Continued

SUSPENDED SEDIMENT. WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)	MEAN CONCENTRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	50	144	35	147	34	117	18	57	17	43	37	149
2	66	264	29	106	30	97	15	46	15	37	30	111
3	55	206	25	73	30	98	15	45	23	89	28	104
4	59	182	26	72	27	85	12	34	32	166	30	112
5	60	172	35	135	25	78	10	22	28	107	34	146
6	66	167	40	185	20	61	10	20	30	96	41	210
7	75	187	32	124	20	60	11	24	42	138	32	164
8	60	165	25	85	18	51	15	47	50	180	23	100
9	57	142	24	76	18	52	14	41	34	109	20	77
10	50	113	25	72	19	57	15	42	30	94	18	67
11	47	102	22	61	20	63	13	34	110	947	20	76
12	45	91	20	55	20	63	10	21	220	3160	20	73
13	40	81	20	58	18	55	8	14	90	1080	24	87
14	42	91	20	58	16	47	11	26	50	343	22	78
15	50	130	19	58	15	41	13	37	33	175	20	67
16	50	134	19	58	18	50	15	47	25	110	18	58
17	47	131	20	57	20	56	14	41	22	90	20	64
18	45	124	26	90	22	64	13	33	20	83	20	67
19	87	402	30	130	25	74	10	20	27	128	18	60
20	80	434	32	140	25	72	13	30	180	3060	18	60
21	58	215	30	108	23	64	16	50	140	2290	19	62
22	50	139	33	107	20	48	16	54	125	1110	19	60
23	35	81	45	135	17	39	18	63	70	437	22	77
24	25	59	41	130	20	54	18	59	55	306	37	192
25	25	78	46	191	23	72	16	51	50	263	80	596
26	35	124	48	254	20	53	14	34	45	216	55	394
27	40	161	42	189	15	34	15	39	42	189	40	231
28	32	110	40	161	13	29	20	59	40	171	40	197
29	26	79	45	204	19	59	20	58	---	---	36	156
30	30	100	39	158	20	67	19	54	---	---	35	141
31	35	135	---	---	22	77	19	52	---	---	85	633
TOTAL	---	4743	---	3477	---	1937	---	1254	---	15237	---	4669
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	135	1580	64	232	40	119	30	47	61	113	35	48
2	97	728	60	202	44	125	30	48	53	85	35	48
3	90	542	60	196	54	169	41	88	55	98	74	181
4	85	441	55	157	65	228	300	2990	52	84	89	243
5	87	418	40	111	60	201	250	2130	50	80	110	463
6	78	369	38	112	61	193	200	1530	56	106	200	1580
7	80	404	40	120	90	391	155	1090	67	174	170	886
8	80	402	43	134	160	1150	88	380	60	119	300	3760
9	70	325	39	119	130	639	76	287	61	118	240	2460
10	76	390	38	112	94	338	50	151	75	143	195	1440
11	71	366	41	116	69	212	35	90	80	156	154	852
12	60	292	44	129	64	181	34	80	80	159	95	433
13	41	173	50	161	70	198	30	63	98	225	83	325
14	37	147	46	145	70	198	30	61	70	145	46	114
15	40	172	50	144	64	170	26	45	54	105	40	87
16	40	174	55	154	50	119	35	69	49	93	58	169
17	45	196	55	154	40	83	40	79	51	114	230	1910
18	45	183	51	127	43	90	39	76	40	60	150	1430
19	43	173	60	147	45	98	39	73	37	50	122	675
20	40	161	87	308	50	110	37	66	56	103	95	364
21	54	274	122	741	48	101	40	83	52	95	67	173
22	65	342	90	539	40	78	45	80	52	99	55	121
23	60	282	65	300	42	82	47	86	51	91	59	133
24	90	471	43	152	40	74	50	86	47	73	55	130
25	85	464	30	85	39	72	89	262	30	34	47	106
26	84	408	25	64	37	67	85	257	25	27	40	87
27	66	258	29	82	37	66	82	232	32	48	40	87
28	60	217	32	95	59	138	63	126	30	45	33	58
29	65	240	44	163	41	79	80	179	42	63	30	45
30	60	211	60	261	27	40	95	259	40	63	30	48
31	---	---	50	188	---	---	66	138	44	82	---	---
TOTAL	---	10803	---	5750	---	5809	---	11231	---	3050	---	18456

TOTAL LOAD FOR YEAR: 86416 TONS.

02075500 DAN RIVER AT PACES, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

DATE	DEC 2,80	MAR 30,81	MAY 12,81	JUL 29,81	SEP 16,81
TIME	1130	1115	1115	1215	1200
TOTAL CELLS/ML	9700	3000	1300	1100	1300
DIVERSITY: DIVISION	0.1	0.7	1.4	1.3	1.1
.CLASS	0.1	0.7	1.4	1.3	1.1
..ORDER	1.0	0.8	1.6	1.3	1.5
...FAMILY	1.0	1.0	1.8	2.3	2.2
....GENUS	1.2	1.0	1.8	2.8	2.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...MICRACTINIACEAE										
....MICRACTINIUM	51	1	--	-	480#	37	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	*	0	--	-	14	1	14	1
....SELENASTRUM	*	0	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....CRUCIGENIA	--	-	--	-	--	-	55	5	--	-
....SCENEDESMUS	--	-	26	1	--	-	82	7	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	*	0	*	0	26	2	--	-	14	1
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	--	-	--	-	--	-	28	2
....MELOSIRA	--	-	120	4	26	2	--	-	14	1
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	*	0	--	-	--	-	28	2
....COCCONEIS	--	-	--	-	--	-	--	-	14	1
...CYMBELLACEAE										
....CYMBELLA	--	-	--	-	--	-	27	2	28	2
...FRAGILARIACEAE										
....SYNEDRA	*	0	100	3	13	1	--	-	14	1
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	--	-	13	1	--	-	14	1
...NAVICULACEAE										
....DIPLONEIS	--	-	--	-	--	-	--	-	14	1
....FRUSTULIA	--	-	--	-	--	-	14	1	14	1
....NAVICULA	--	-	90	3	64	5	41	4	170	13
....PINNULARIA	--	-	--	-	--	-	27	2	--	-
...NITZSCHIACEAE										
....NITZSCHIA	*	0	51	2	39	3	140	12	110	9
...SURIRELLACEAE										
....SURIRELLA	--	-	--	-	--	-	--	-	14	1
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	3000#	31	--	-	620#	48	--	-	42	3
..HORMOGONALES										
...NOSTOCACEAE										
....APHANIZOMENON	--	-	--	-	--	-	340#	30	--	-
...OSCILLATORIACEAE										
....LYNGBYA	6400#	65	--	-	--	-	82	7	140	11
....OSCILLATORIA	180	2	2500#	86	--	-	300#	27	590#	47

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

02076500 GEORGES CREEK NEAR GRETNA, VA

LOCATION.--Lat 36°56'11", long 79°18'42", Pittsylvania County, Hydrologic Unit 03010105, on left bank 15 ft (5 m) downstream from bridge on State Highway 40, 2.8 mi (4.5 km) southeast of Gretna, and 5.8 mi (9.3 km) upstream from Whitethorn Creek.

DRAINAGE AREA.--9.24 mi² (23.93 km²).

PERIOD OF RECORD.--September 1949 to current year.

REVISED RECORDS.--WSP 1703: 1950-52. WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 629.54 ft (191.884 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Occasional regulation at low flow from unknown source. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--32 years, 9.53 ft³/s (0.270 m³/s), 14.01 in/yr (356 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,480 ft³/s (41.9 m³/s) Sept. 22, 1979, gage height, 8.50 ft (2.591 m), from rating curve extended above 640 ft³/s (18 m³/s) on basis of slope-area measurements at gage heights 4.93 ft (1.503 m) and 6.22 ft (1.896 m) and contracted-opening measurements at gage heights 7.75 ft (2.362 m) and 8.50 ft (2.591 m); minimum daily, 1.0 ft³/s (0.028 m³/s) Mar. 12, Apr. 5, 1956, July 28, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 135 ft³/s (3.82 m³/s) Feb. 19, gage height, 2.85 ft (0.869 m), no peak above base of 150 ft³/s (4.2 m³/s); minimum, 1.1 ft³/s (0.031 m³/s) Aug. 29, gage height, 0.64 ft (0.195 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.5	6.3	6.7	5.0	5.5	6.8	8.2	4.8	5.0	2.1	2.0	7.9
2	6.3	6.6	6.5	5.1	15	6.3	7.1	4.4	4.0	2.4	2.1	4.0
3	8.6	6.9	6.3	5.0	9.0	5.5	6.6	4.2	3.7	8.2	2.8	3.6
4	6.9	11	6.1	5.0	7.8	6.0	6.6	4.0	3.4	9.5	2.3	11
5	6.0	9.4	6.2	5.1	6.7	8.2	7.9	3.9	3.2	4.0	2.0	6.8
6	6.3	6.3	6.3	5.2	6.2	6.6	7.6	3.9	6.6	7.6	2.3	5.0
7	4.8	6.9	6.5	5.2	5.8	6.0	6.3	4.2	23	4.8	3.9	14
8	4.8	6.9	6.1	5.2	6.5	5.8	5.5	3.7	5.8	3.6	9.2	4.1
9	4.8	7.5	6.3	5.1	5.8	5.5	8.9	3.7	4.7	3.1	3.7	2.9
10	4.8	7.2	6.4	5.1	5.5	5.5	7.9	4.2	4.2	2.8	3.2	2.5
11	5.1	6.9	5.9	4.8	29	5.8	6.8	4.2	3.6	2.6	3.1	2.4
12	5.4	6.6	5.8	4.3	13	5.8	6.3	3.7	3.4	2.9	3.1	2.1
13	4.6	6.6	5.8	4.3	8.7	5.8	5.8	3.7	3.4	4.2	3.1	2.1
14	4.4	7.2	5.7	4.5	7.0	5.3	6.3	3.6	3.4	2.4	2.6	2.0
15	4.2	7.5	5.4	4.5	6.4	5.3	7.1	3.6	2.9	2.3	2.6	2.4
16	4.2	7.5	5.5	4.6	5.9	5.5	5.8	3.6	2.4	2.9	2.4	12
17	4.2	9.0	5.5	4.6	5.7	5.5	7.1	3.4	2.4	3.6	2.3	9.2
18	4.4	13	5.4	4.7	5.5	5.5	7.3	3.6	2.4	2.4	2.0	4.1
19	6.3	7.4	5.5	4.7	24	6.0	6.3	6.6	2.6	2.6	2.0	3.7
20	4.8	7.3	5.3	4.8	39	6.0	12	8.9	2.3	2.4	2.4	4.0
21	3.8	6.5	5.4	6.7	15	6.3	8.6	5.0	2.4	2.3	2.3	3.9
22	3.8	6.3	5.4	6.8	10	6.6	7.1	4.0	2.3	2.0	2.1	3.5
23	3.6	6.9	5.2	5.8	9.8	11	7.3	3.6	2.0	2.1	2.0	3.0
24	3.8	12	4.6	5.3	8.6	9.5	11	3.6	1.8	11	1.8	2.8
25	8.6	9.2	4.5	5.1	7.3	7.6	6.8	3.4	1.8	4.0	1.6	2.6
26	5.1	7.2	4.4	5.1	6.6	6.8	6.6	3.1	2.1	3.6	1.7	2.4
27	4.2	8.1	4.4	5.0	6.8	6.8	5.8	3.6	2.1	3.1	1.7	2.3
28	4.8	8.5	4.8	4.9	6.8	6.6	5.3	6.0	2.0	2.6	1.7	2.2
29	4.6	7.4	5.2	4.6	---	6.6	5.0	4.2	2.1	2.4	1.6	1.9
30	6.0	7.0	5.4	4.5	---	11	5.0	3.6	2.0	2.1	9.2	1.9
31	6.3	---	5.4	4.5	---	9.8	---	3.6	---	2.0	4.5	---
TOTAL	163.0	233.1	173.9	155.1	288.9	207.3	211.9	129.6	113.0	113.6	89.3	132.3
MEAN	5.26	7.77	5.61	5.00	10.3	6.69	7.06	4.18	3.77	3.66	2.88	4.41
MAX	8.6	13	6.7	6.8	39	11	12	8.9	23	11	9.2	14
MIN	3.6	6.3	4.4	4.3	5.5	5.3	5.0	3.1	1.8	2.0	1.6	1.9
CFSM	.57	.84	.61	.54	1.12	.72	.76	.45	.41	.40	.31	.48
IN.	.66	.94	.70	.62	1.16	.83	.85	.52	.45	.46	.36	.53

CAL YR 1980 TOTAL 3456.4 MEAN 9.44 MAX 88 MIN 2.4 CFSM 1.02 IN 13.91
WTR YR 1981 TOTAL 2011.0 MEAN 5.51 MAX 39 MIN 1.6 CFSM .60 IN 8.10

02077000 BANISTER RIVER AT HALIFAX, VA

LOCATION.--Lat 36°46'35", long 78°54'58", Halifax County, Hydrologic Unit 03010105, on left bank 10 ft (3 m) downstream from bridge on U.S. Highway 360, 1,700 ft (520 m) downstream from Terrible Creek, 1 mi (1.6 km) northeast of Halifax, and 10 mi (16 km) upstream from mouth.

DRAINAGE AREA.--547 mi² (1,417 km²).

PERIOD OF RECORD.--September 1904 to December 1905, October 1928 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 892: 1929-30, 1932-35. WSP 972: 1938(M), 1940. WSP 1112: 1943(M). WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 318.54 ft (97.091 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Sept. 28, 1904, to Dec. 31, 1905, nonrecording gage at site 400 ft (120 m) upstream at different datum. Dec. 9, 1928, to Sept. 20, 1950, water-stage recorder at site 400 ft (120 m) upstream at present datum.

REMARKS.--Records good. Low and medium flow regulated at times during year by a lake 0.5 mi (0.8 km) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--54 years, 504 ft³/s (14.27 m³/s), 12.51 in/yr (318 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s (1,420 m³/s) Sept. 20, 1944, gage height, 40.8 ft (12.44 m), from floodmarks, from rating curve extended above 13,000 ft³/s (370 m³/s) on basis of slope-area measurement of peak flow and velocity-area study; minimum, 6.0 ft³/s (0.17 m³/s) on many days in August and September 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,650 ft³/s (75.0 m³/s) Feb. 21, gage height, 10.44 ft (3.182 m); minimum, 93 ft³/s (2.63 m³/s) Aug. 30, gage height, 0.23 ft (0.070 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	200	220	189	142	330	378	226	152	95	153	109
2	139	188	212	180	205	312	370	219	157	99	147	111
3	140	174	207	173	272	295	333	211	162	107	143	110
4	140	180	200	167	234	281	298	200	161	599	140	107
5	141	218	199	138	178	300	279	192	167	965	139	109
6	140	231	198	132	173	337	308	186	195	633	137	120
7	140	211	198	143	196	343	345	181	355	938	138	135
8	139	192	198	161	250	317	332	178	481	624	154	182
9	138	182	199	154	222	293	315	173	299	329	164	170
10	136	177	205	159	209	275	346	172	206	215	155	160
11	136	171	205	153	815	260	373	182	177	183	152	152
12	135	164	204	137	1030	253	358	188	165	172	148	145
13	133	161	201	133	669	246	332	184	160	163	145	139
14	131	160	194	143	418	241	309	174	157	157	141	136
15	130	163	191	163	332	233	299	160	154	151	138	134
16	129	173	188	165	288	230	299	129	151	147	137	146
17	128	182	184	162	264	225	290	129	146	156	137	150
18	128	243	180	155	254	222	285	130	142	190	134	164
19	172	281	178	158	293	220	278	137	138	217	135	169
20	186	260	171	170	1390	217	280	172	136	173	135	168
21	166	221	159	199	2270	213	321	183	135	162	132	160
22	157	202	140	210	1310	208	349	253	134	155	128	152
23	155	194	149	231	645	234	325	234	133	153	121	144
24	153	225	183	207	585	297	333	196	130	291	112	139
25	157	291	181	197	525	327	370	174	127	787	105	134
26	161	279	142	198	455	313	361	160	122	332	98	130
27	160	255	135	198	400	288	318	153	113	214	96	128
28	160	251	154	191	360	264	282	152	107	179	95	127
29	159	252	203	181	---	248	255	154	99	175	94	125
30	174	237	216	176	---	247	235	164	95	171	93	123
31	196	---	199	157	---	296	---	159	---	161	97	---
TOTAL	4594	6318	5793	5271	14384	8365	9556	5505	5056	9093	4043	4178
MEAN	148	211	187	170	514	270	319	178	169	293	130	139
MAX	196	291	220	231	2270	343	378	253	481	965	164	182
MIN	128	160	135	132	142	208	235	129	95	95	93	107
CFSM	.27	.39	.34	.31	.94	.49	.58	.33	.31	.54	.24	.25
IN.	.31	.43	.39	.36	.98	.57	.65	.37	.34	.62	.27	.28

CAL YR 1980 TOTAL 161586 MEAN 441 MAX 5660 MIN 91 CFSM .81 IN 10.99
WTR YR 1981 TOTAL 82156 MEAN 225 MAX 2270 MIN 93 CFSM .41 IN 5.59

02077500 HYCO RIVER NEAR DENNISTON, VA

LOCATION.--Lat 36°35'16", long 78°53'56", Halifax County, Hydrologic Unit 03010104, on left bank 60 ft (18 m) upstream from bridge on U.S. Highway 501, 0.8 mi (1.3 km) upstream from Mayo Creek, 2.5 mi (4.0 km) northeast of Denniston, and 7.3 mi (11.7 km) south of South Boston.

DRAINAGE AREA.--289 mi^2 (749 km^2).

PERIOD OF RECORD.--October 1928 to September 1934, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1303.

REVISED RECORDS.--WSP 1383: Drainage area, 1930. WSP 1503: 1930(M). WDR VA-75-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 315.24 ft (96.085 m) National Geodetic Vertical Datum of 1929. July 10, 1929, to Mar. 14, 1934, nonrecording gage at same site and datum.

REMARKS.--Records good. Small diurnal fluctuation at low flow in some years caused by mill above station. Since 1964, flow regulated by Hyco Lake 15.7 mi (25.3 km) upstream, capacity 75,480 acre-ft (93.1 hm^3), and since Apr. 26, 1974, by Roxboro Steam-Electric Generating Plant afterbay Reservoir, capacity 12,000 acre-ft (14.8 hm^3). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--37 years, 249 ft^3/s (7.052 m^3/s), 11.70 in/yr (297 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 ft^3/s (306 m^3/s) July 15, 1975, gage height, 24.27 ft (7.397 m), from rating curve extended above 8,200 ft^3/s (230 m^3/s); minimum, 0.004 ft^3/s (<0.001 m^3/s) Sept. 14, 1932, gage height, 3.58 ft (1.091 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in August 1928 and September 1945 reached stages of 26.4 ft (8.05 m) and 25.6 ft (7.80 m), respectively, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 626 ft^3/s (17.7 m^3/s) Feb. 11, gage height, 9.93 ft (3.027 m); minimum, 13 ft^3/s (0.37 m^3/s) Feb. 1, gage height, 4.73 ft (1.442 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	49	37	35	19	32	61	30	22	21	17	20
2	55	44	36	34	22	31	46	29	24	21	16	19
3	48	42	38	33	38	31	45	27	27	23	16	18
4	46	46	38	31	26	31	42	26	30	332	16	18
5	45	70	37	33	26	46	41	26	32	227	17	40
6	43	49	37	37	27	53	51	27	31	42	17	60
7	42	36	35	35	24	41	45	27	32	52	89	52
8	43	34	34	47	22	36	40	27	35	31	90	96
9	43	33	34	43	24	34	40	26	30	24	28	33
10	42	31	37	35	22	33	51	26	29	23	22	24
11	43	31	41	39	417	34	41	28	28	22	33	21
12	43	33	39	34	320	33	36	28	27	21	44	20
13	41	34	36	32	91	33	33	26	26	20	31	19
14	37	35	35	35	58	32	32	25	26	20	24	18
15	37	36	33	33	45	31	32	25	26	20	21	18
16	38	38	33	35	39	31	31	24	24	21	19	35
17	38	37	34	37	37	32	30	24	25	21	22	74
18	39	40	34	35	36	32	30	23	34	20	38	32
19	45	46	33	31	39	32	29	24	43	18	22	24
20	73	39	32	30	69	32	30	33	39	17	30	21
21	43	40	31	27	72	32	47	76	32	19	26	19
22	40	41	30	28	51	33	35	42	25	22	20	18
23	40	39	30	28	43	42	42	29	24	19	19	18
24	41	44	32	24	41	108	43	26	24	18	18	17
25	44	78	31	22	38	116	41	24	23	18	17	17
26	48	56	29	20	35	77	36	24	25	18	18	17
27	48	46	31	21	34	60	35	24	23	17	17	16
28	43	47	30	22	33	54	33	25	22	17	17	15
29	44	45	31	21	---	50	32	26	21	17	17	15
30	48	40	36	20	---	52	31	25	21	17	17	16
31	56	---	36	19	---	69	---	23	---	17	22	---
TOTAL	1392	1279	1060	956	1748	1383	1161	875	830	1195	820	830
MEAN	44.9	42.6	34.2	30.8	62.4	44.6	38.7	28.2	27.7	38.5	26.5	27.7
MAX	73	78	41	47	417	116	61	76	43	332	90	96
MIN	37	31	29	19	19	31	29	23	21	17	16	15

CAL YR 1980 TOTAL 66256 MEAN 181 MAX 1820 MIN 23
WTR YR 1981 TOTAL 13529 MEAN 37.1 MAX 417 MIN 15

02079490 JOHN H. KERR RESERVOIR NEAR BOYDTON, VA

LOCATION.--Lat 36°35'56", long 78°18'06", Mecklenburg County, Hydrologic Unit 03010102, at John H. Kerr Dam on Roanoke River, 2.7 mi (4.3 km) upstream from Allen Creek, 6.7 mi (10.8 km) southeast of Boydton, 18 mi (29 km) upstream from the Virginia-North Carolina State line, and at mile 178.7 (287.5 km).

DRAINAGE AREA.--7,780 mi² (20,150 km²), approximately.

PERIOD OF RECORD.--July 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by concrete dam with earth embankments. Spillway, with crest at elevation 288.0 ft (87.78 m), is equipped with 22 radial gates 32 ft (9.8 m) high by 42 ft (13 m) wide. Storage began in September 1950 during construction; initial filling started June 30, 1952; water in reservoir first reached rule-curve elevation in March 1953. Total capacity at top of gates, elevation, 320 ft (97.5 m), is 2,770,000 acre-ft (3.42 km³) of which 1,281,400 acre-ft (1.58 km³) is controlled flood storage between elevations 300 ft (91.4 m), top of power pool, and 320 ft (97.5 m); 316,900 acre-ft (391 hm³) is available for power between elevations 293.0 ft (89.31 m), bottom of power pool, and 300 ft (91.4 m); 1,171,700 acre-ft (1.44 km³) is inactive and dead storage below elevation 293.0 ft (89.31 m). Figures given herein represent total contents. Reservoir is used for flood control, hydroelectric power, low-water regulation for navigation and pollution abatement, release of water for downstream fish spawning, and recreation.

COOPERATION.--Records furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 2,656,300 acre-ft (3.28 km³) Apr. 3, 1975, elevation, 318.85 ft (97.185 m); minimum (after first filling to rule curve), 724,700 acre-ft (894 hm³) Feb. 3, 1956, elevation, 280.23 ft (85.414 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,508,800 acre-ft (1.86 km³) Apr. 27, elevation, 300.40 ft (91.562 m); minimum, 1,164,500 acre-ft (1.44 km³) Feb. 4, elevation, 292.82 ft (89.252 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	295.61	1282740	
Oct. 31	295.92	1296380	+13640
Nov. 30	296.62	1327920	+31540
Dec. 31	295.55	1280100	-47820
CAL YR 1980			-42750
Jan. 31	292.96	1170100	-110000
Feb. 28	297.20	1354420	+184320
Mar. 31	298.48	1414640	+60220
Apr. 30	300.04	1490620	+75980
May 31	298.99	1439020	-51600
June 30	297.59	1372590	-66430
July 31	296.75	1333800	-38790
Aug. 31	295.39	1273060	-60740
Sept. 30	295.10	1260300	-12760
WTR YR 1981			-22440

02079640 ALLEN CREEK NEAR BOYDTON, VA

LOCATION.--Lat 36°40'46", long 78°19'37", Mecklenburg County, Hydrologic Unit 03010106, on left bank at upstream side of bridge on U.S. Highway 58, 0.8 mi (1.3 km) upstream from Coleman Creek, 2.3 mi (3.7 km) downstream from Layton Creek, 3.7 mi (6.0 km) east of Boydton, and 11.8 mi (19.0 km) southwest of South Hill.

DRAINAGE AREA.--53.4 mi^2 (138.3 km^2).

PERIOD OF RECORD.--October 1961 to current year.

REVISED RECORDS.--WSP 2104: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 216.50 ft (65.989 m) National Geodetic Vertical Datum of 1929 (levels by Virginia Department of Highways and Transportation).

REMARKS.--Records good except those for period of doubtful or no gage-height record, Nov. 12 to Jan. 19, which are fair. Several observations of water temperature were made during the year.

COOPERATION.--Records computed and furnished by the Virginia State Water Control Board.

AVERAGE DISCHARGE.--20 years, 42.4 ft^3/s (1.201 m^3/s), 10.78 in/yr (274 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,620 ft^3/s (159 m^3/s) Oct. 23, 1971, gage height, 21.80 ft (6.645 m), from rating curve extended above 3,100 ft^3/s (88 m^3/s); no flow many days in August, September, and October 1968, September and October 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,140 ft^3/s (32.3 m^3/s) at 1900 hours July 24, gage height, 13.39 ft (4.081 m), no other peak above base of 850 ft^3/s (24 m^3/s); minimum, 0.44 ft^3/s (0.012 m^3/s) Sept. 29, 30, gage height, 1.18 ft (0.360 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.7	8.1	12	6.9	7.4	12	23	10	13	2.8	5.0	1.6
2	5.0	7.1	10	7.0	11	11	18	9.1	12	3.4	4.6	1.5
3	3.9	6.7	9.4	7.0	28	11	15	8.0	9.1	5.3	4.8	1.5
4	7.9	17	8.8	6.9	17	10	13	7.5	49	120	8.6	1.4
5	4.8	36	8.2	6.0	13	16	15	7.1	88	32	6.4	1.2
6	3.8	9.3	8.4	5.8	12	18	81	6.9	18	227	4.4	1.6
7	3.3	6.1	8.1	5.4	11	13	35	6.9	195	81	4.2	2.5
8	2.8	5.1	8.0	5.2	12	12	23	6.8	35	21	4.2	3.6
9	2.5	4.8	8.0	5.1	16	11	20	6.4	18	12	3.9	3.3
10	2.4	4.4	15	5.1	13	10	24	7.3	13	8.6	3.6	2.3
11	2.4	4.2	25	4.7	64	9.3	20	228	10	6.9	8.8	1.6
12	2.4	4.1	16	4.6	74	9.0	18	81	8.4	5.9	10	1.2
13	2.2	4.2	13	4.6	25	8.8	16	26	7.7	5.1	6.0	1.0
14	2.1	4.1	12	4.5	18	8.6	15	17	7.3	4.6	4.2	.92
15	2.2	4.2	11	4.5	15	9.3	17	13	6.6	4.2	3.4	.86
16	2.4	4.4	9.2	5.0	14	9.8	15	11	5.9	4.4	3.1	1.0
17	2.4	8.5	8.6	5.4	13	11	13	9.8	5.3	7.5	2.5	4.1
18	2.5	19	8.0	5.9	13	11	14	8.6	20	6.9	2.1	5.5
19	7.7	18	7.4	6.8	13	10	13	9.5	13	4.4	3.6	4.1
20	12	12	7.0	7.7	110	9.8	13	33	8.0	3.6	8.0	3.2
21	5.9	9.0	6.3	9.1	56	9.3	22	89	6.6	3.3	5.1	2.1
22	4.4	6.4	6.0	13	30	9.1	15	27	5.3	3.1	3.6	1.5
23	3.8	5.3	6.3	17	22	17	13	16	4.6	2.8	3.7	1.0
24	3.5	16	6.5	13	19	65	85	12	3.9	380	3.3	.86
25	17	60	6.3	11	16	31	38	10	3.9	84	2.8	.74
26	20	25	6.2	10	13	21	21	8.8	6.6	25	2.4	.62
27	9.5	17	6.0	9.8	12	17	16	8.0	5.5	14	2.0	.62
28	6.5	23	5.9	9.3	12	15	13	9.8	3.9	10	1.8	.56
29	5.8	18	6.0	9.3	---	13	11	9.8	3.3	8.4	1.5	.50
30	6.1	14	6.4	7.9	---	16	10	8.0	3.1	7.5	1.4	.44
31	8.8	---	6.8	6.6	---	40	---	6.9	---	5.7	1.5	---
TOTAL	170.7	381.0	281.8	230.1	679.4	474.0	665	718.2	589.0	1110.4	130.5	52.92
MEAN	5.51	12.7	9.09	7.42	24.3	15.3	22.2	23.2	19.6	35.8	4.21	1.76
MAX	20	60	25	17	110	65	85	228	195	380	10	5.5
MIN	2.1	4.1	5.9	4.5	7.4	8.6	10	6.4	3.1	2.8	1.4	.44
CFSM	.10	.24	.17	.14	.46	.29	.42	.43	.37	.67	.08	.03
IN.	.12	.27	.20	.16	.47	.33	.46	.50	.41	.77	.09	.04

CAL YR 1980 TOTAL 13900.09 MEAN 38.0 MAX 683 MIN .75 CFSM .71 IN 9.68
WTR YR 1981 TOTAL 5483.02 MEAN 15.0 MAX 380 MIN .44 CFSM .28 IN 3.82

KANAWHA RIVER BASIN

03161000 SOUTH FORK NEW RIVER NEAR JEFFERSON, NC

LOCATION (REVISED).--Lat 36°23'35", long 81°24'26", Ashe County, Hydrologic Unit 05050001, on right bank 600 ft (183 m) upstream from bridge on State Highways 16 and 88, 0.2 mi (0.3 km) downstream from Bear Creek, and 4 mi (6.4 km) southeast of Jefferson.

DRAINAGE AREA.--205 mi² (531 km²), revised.

PERIOD OF RECORD.--October 1924 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1275: 1925-26(M), 1928-30(M), 1931-32, 1933-35(M), 1941-42(m), 1944(m).

GAGE.--Water-stage recorder. Datum of gage is 2,657.04 ft (809.866 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 14, 1934, nonrecording gage on bridge 400 ft (122 m) downstream at same datum. Oct. 14, 1934, to Mar. 25, 1935, nonrecording gage at present site and datum.

REMARKS.--Records good. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--57 years, 430 ft³/s (12.18 m³/s), 28.48 in/yr (723 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 52,800 ft³/s (1,500 m³/s) Aug. 14, 1940, gage height, 22.50 ft (6.858 m), from rating curve extended above 5,100 ft³/s (144 m³/s) on basis of slope-area measurement of peak flow; minimum, 52 ft³/s (1.47 m³/s) Dec. 24, 1943, result of freezeup; minimum daily, 65 ft³/s (1.84 m³/s) Sept. 9, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 15, 1916, reached a stage of 18.0 ft (5.49 m), from floodmarks witnessed by local resident, discharge, 35,200 ft³/s (997 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,600 ft³/s (74 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 11	0415	3520	99.7	6.09	1.856
May 27	2030	*4520	128	6.79	2.070

Minimum discharge, 70 ft³/s (1.98 m³/s) Dec. 25, gage height, 1.38 ft (0.421 m), result of freezeup; minimum daily, 120 ft³/s (3.40 m³/s) Sept. 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	471	226	235	189	190	342	521	303	642	282	204	133
2	340	208	227	175	650	330	452	293	740	305	211	138
3	240	200	221	185	517	303	398	280	911	320	225	295
4	209	198	213	156	205	296	373	275	1030	324	217	251
5	234	198	205	160	190	439	387	269	799	297	199	197
6	316	190	203	200	195	548	422	270	705	316	201	193
7	255	182	198	246	215	429	351	287	910	359	213	184
8	214	185	194	210	210	368	333	293	779	308	208	175
9	200	182	195	205	190	340	325	269	615	266	227	153
10	192	181	222	190	280	325	327	275	557	252	196	142
11	186	171	225	185	2310	308	313	659	507	259	180	136
12	180	167	200	190	910	296	299	594	473	317	172	132
13	174	167	196	190	496	290	293	392	460	321	168	128
14	173	168	189	205	424	291	292	346	512	261	167	126
15	173	178	186	210	330	281	318	420	446	244	167	135
16	171	200	182	210	303	280	308	378	393	238	170	359
17	170	208	184	200	300	321	286	331	371	274	170	313
18	176	235	178	185	373	288	353	318	356	275	171	189
19	252	229	179	190	454	282	384	349	357	240	166	161
20	268	197	178	205	769	271	552	577	366	255	160	148
21	197	184	155	215	667	263	739	806	339	232	155	140
22	182	178	142	215	496	273	476	579	322	217	151	137
23	178	185	190	215	661	305	408	460	308	208	149	135
24	179	336	205	190	744	308	425	405	301	239	145	130
25	371	428	150	196	537	356	406	370	293	264	144	127
26	535	274	175	201	454	416	355	352	291	264	142	126
27	287	261	180	208	391	410	338	1870	280	216	141	126
28	249	344	235	209	355	388	323	2230	270	204	138	123
29	238	296	241	203	---	363	310	1150	267	223	135	120
30	243	253	226	183	---	479	308	884	271	249	134	120
31	253	---	214	159	---	734	---	739	---	214	142	---
TOTAL	7506	6609	6123	6080	13816	10923	11375	17023	14871	8243	5368	4972
MEAN	242	220	198	196	493	352	379	549	496	266	173	166
MAX	535	428	241	246	2310	734	739	2230	1030	359	227	359
MIN	170	167	142	156	190	263	286	269	267	204	134	120
CFSM	1.18	1.07	.97	.96	2.41	1.72	1.85	2.68	2.42	1.30	.84	.81
IN.	1.36	1.20	1.11	1.10	2.51	1.98	2.06	3.09	2.70	1.50	.97	.90

CAL YR 1980 TOTAL 160397 MEAN 438 MAX 4100 MIN 142 CFSM 2.14 IN 29.11
WTR YR 1981 TOTAL 112909 MEAN 309 MAX 2310 MIN 120 CFSM 1.51 IN 20.49

03164000 NEW RIVER NEAR GALAX, VA

LOCATION.--Lat 36°38'50", long 80°58'45", Grayson County, Hydrologic Unit 05050001, on left bank at upstream side of bridge on State Highway 94, 500 ft (152 m) downstream from Meadow Creek, 1.2 mi (1.9 km) southwest of Old Town, 3.1 mi (5.0 km) southwest of Galax, and 3.6 mi (5.8 km) downstream from Elk Creek.

DRAINAGE AREA.--1,131 mi^2 (2,929 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1929 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 758: Drainage area, 1933(M). WSP 893: 1930(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 2,208.04 ft (673.011 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Appalachian Power Co. long-distance gage-height transmitter at station, recorder at Roanoke.

AVERAGE DISCHARGE. -52 years, 1,902 ft^3/s (53.86 m^3/s), 22.84 in/yr (580 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 141,000 ft^3/s (3,990 m^3/s) Aug. 14, 1940, gage height, 25.7 ft (7.83 m), from floodmark, from rating curve extended above 32,000 ft^3/s (910 m^3/s) on basis of computation of peak flow over dam at Fries 6 mi (10 km) downstream and slope-area measurement of peak flow; minimum, 193 ft^3/s (5.47 m^3/s) Jan. 9, 1956, gage height, 0.52 ft (0.158 m), result of freezeup; minimum daily, 265 ft^3/s (7.50 m^3/s) Sept. 19, 1954.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 9,000 ft^3/s (250 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 11	1215	13000	368	4.89	1.490	May 28	0730	*19800	561	6.37	1.942
May 21	1200	10100	286	4.20	1.280						

Minimum daily discharge, 300 ft^3/s (8.50 m^3/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1360	896	1050	956	1390	1600	2670	1270	3420	1310	650	523
2	1470	843	982	805	2600	1620	2200	1180	3110	1250	593	593
3	1130	799	947	700	2660	1380	1860	1110	3080	1310	607	1050
4	902	801	920	550	1860	1330	1640	1040	3030	1370	607	1400
5	910	802	871	300	1000	1740	1600	984	2940	1220	593	1400
6	1190	776	840	600	750	2480	1760	950	2640	1250	578	967
7	1170	740	816	700	700	2430	1560	1000	4670	1560	790	806
8	976	720	800	800	720	1940	1380	1040	4150	1350	885	761
9	822	714	795	780	900	1680	1350	950	3240	1140	733	705
10	772	708	836	700	1500	1500	1370	901	2690	967	677	664
11	747	678	1010	550	8720	1380	1310	2180	2390	885	607	621
12	717	651	899	450	6300	1310	1230	2740	2090	934	551	578
13	685	637	829	500	3290	1220	1160	1840	1940	1180	523	551
14	673	638	787	650	2530	1200	1160	1440	1940	1050	523	551
15	679	682	757	800	1820	1180	1350	1580	1860	901	510	621
16	693	772	735	600	1580	1110	1440	1660	1700	917	497	1780
17	702	823	737	450	1520	1160	1310	1380	1540	901	523	1880
18	737	939	718	500	1720	1140	1520	1270	1460	901	621	1230
19	1150	998	694	550	2050	1140	1900	1480	1460	901	565	901
20	1360	863	697	700	3190	1070	2340	2940	1500	869	537	761
21	1020	788	500	900	3360	1000	4510	8640	1420	776	510	705
22	821	734	450	1020	2690	1000	3110	5110	1310	705	497	664
23	756	716	600	1010	2720	1120	2320	3210	1220	635	446	635
24	742	941	800	980	3520	1250	2160	2430	1160	664	459	607
25	1200	1540	850	924	2810	1420	2090	2010	1140	776	446	578
26	2200	1370	480	922	2250	1580	1820	1760	1140	733	421	593
27	1580	1160	500	818	1920	1600	1620	3420	1120	733	446	537
28	1160	1370	950	899	1720	1520	1480	16400	1040	635	434	551
29	1020	1370	1000	866	---	1420	1370	8490	984	677	434	565
30	953	1180	1100	830	---	1740	1310	5630	1050	869	446	497
31	936	---	1000	569	---	3060	---	4210	---	733	471	---
TOTAL	31233	26649	24950	22379	67790	46320	53900	90245	62434	30102	17180	24275
MEAN	1008	888	805	722	2421	1494	1797	2911	2081	971	554	809
MAX	2200	1540	1100	1020	8720	3060	4510	16400	4670	1560	885	1880
MIN	673	637	450	300	700	1000	1160	901	984	635	421	497
CFSM	.89	.79	.71	.64	2.14	1.32	1.59	2.57	1.84	.86	.49	.72
IN.	1.03	.88	.82	.74	2.23	1.52	1.77	2.97	2.05	.99	.57	.80

CAL YR 1980 TOTAL 690740 MEAN 1887 MAX 16100 MIN 450 CFSM 1.67 IN 22.72
WTR YR 1981 TOTAL 497457 MEAN 1363 MAX 16400 MIN 300 CFSM 1.21 IN 16.36

03164000 NEW RIVER NEAR GALAX, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to current year.
WATER TEMPERATURES: October to December 1949, April 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 125 micromhos Mar. 31, 1980; minimum daily, 10 micromhos Nov. 20, 1975.
WATER TEMPERATURES (water years 1968-81): Maximum, 31.0°C July 17, 18, 1969; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 87 micromhos Nov. 4, 5; minimum daily, 26 micromhos July 29.
WATER TEMPERATURES: Maximum daily, 30.5°C July 11; minimum daily observed, 0.0°C Dec. 20.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)
OCT 03...	1340	1110	52	8.0	18.5	5	9.2	15	0	3.5	1.5	2.9
NOV 24...	1230	938	48	7.3	6.0	5	12.2	18	1	4.4	1.7	4.1
JAN 05...	1230	300	48	7.6	.5	<5	13.9	15	0	3.6	1.4	3.0
MAR 02...	1150	1520	46	6.2	6.5	<5	9.6	12	0	2.9	1.2	2.6
31...	1215	3190	49	6.4	13.5	15	9.6	15	0	3.7	1.3	3.0
MAY 07...	1130	1040	57	7.5	15.5	5	9.2	14	2	3.5	1.3	2.8
JUL 22...	1250	705	61	7.6	26.0	5	9.5	16	0	4.0	1.5	4.4

< Actual value is known to be less than the value shown.

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NITRITE DIS-SOLVED (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P)	IRON, DIS-SOLVED (UG/L AS FE)
OCT 03...	1.4	17	2.7	2.7	.1	11	44	37	<.010	.29	<.010	70
NOV 24...	1.4	20	2.6	3.6	<.1	8.4	35	39	<.010	--	<.010	90
JAN 05...	1.0	19	2.9	3.1	<.1	9.8	35	36	<.010	.53	<.010	60
MAR 02...	1.1	14	4.2	2.8	<.1	10	35	33	<.010	.92	.010	80
31...	1.4	15	4.1	3.4	<.1	11	37	37	<.010	.53	<.010	130
MAY 07...	1.4	12	2.4	3.2	<.1	9.9	40	32	<.010	.44	.010	100
JUL 22...	2.2	18	3.1	4.8	<.1	9.2	40	40	<.010	.24	.020	80

< Actual value is known to be less than the value shown.

03164000 NEW RIVER NEAR GALAX, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	58	54	38	---	---	48	45	39	47	56	32	33
2	56	55	40	---	73	52	53	46	44	56	32	40
3	56	54	40	---	55	50	58	50	41	55	32	40
4	58	87	53	---	---	48	46	46	46	52	32	50
5	58	87	36	---	---	53	49	46	44	52	32	40
6	68	55	43	---	---	43	48	48	45	44	32	49
7	62	62	40	---	---	45	62	52	44	49	32	43
8	54	63	60	---	---	35	58	50	49	52	29	38
9	55	63	58	---	---	40	55	51	43	48	32	43
10	56	55	68	---	---	40	47	41	40	45	32	38
11	56	54	63	---	28	43	53	49	40	49	58	45
12	---	54	45	---	30	45	50	49	41	49	32	48
13	69	54	42	---	30	48	47	47	40	49	32	36
14	55	58	35	---	45	38	58	55	40	51	54	37
15	58	55	30	---	58	40	44	46	43	53	33	37
16	58	55	35	---	58	43	56	40	40	53	49	---
17	51	53	30	---	60	48	53	48	38	49	---	37
18	58	72	38	---	---	50	43	46	35	51	---	43
19	58	56	38	---	50	50	54	44	43	53	---	58
20	---	53	35	---	50	48	57	47	41	60	---	49
21	76	60	---	---	45	48	58	42	41	47	---	38
22	72	---	---	---	48	50	57	45	44	55	---	38
23	74	---	---	---	45	50	59	46	45	50	---	40
24	75	---	---	---	48	50	55	48	50	50	33	51
25	63	---	---	---	45	50	47	49	48	52	33	52
26	63	---	---	---	50	53	52	49	49	49	33	53
27	63	---	---	---	50	60	38	55	49	48	33	51
28	63	---	---	---	58	50	36	50	49	48	33	47
29	51	33	---	48	---	48	35	48	49	26	33	49
30	62	38	---	---	---	45	81	46	49	33	35	48
31	56	---	---	---	---	49	---	47	---	---	33	---
MEAN	61	58	43	48	49	47	52	47	44	49	35	44

WTR YR 1981 MEAN 48 MAX 87 MIN 26

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	12.0	7.0	---	---	9.0	16.5	19.5	21.0	27.0	27.5	26.0
2	19.0	10.5	8.0	---	1.0	7.5	17.0	19.0	21.5	25.5	28.0	25.0
3	16.0	12.0	8.0	---	1.0	9.0	16.5	18.0	21.0	26.0	28.0	25.5
4	15.0	13.0	8.5	---	---	6.0	17.5	18.5	22.0	27.0	27.0	24.5
5	16.0	12.0	8.0	---	---	8.0	15.0	17.0	23.0	26.0	28.0	24.0
6	15.0	10.0	7.5	---	---	9.5	15.0	18.0	22.5	26.5	28.5	24.0
7	16.5	11.0	8.0	---	---	8.0	14.0	17.5	23.0	25.0	27.0	24.5
8	17.0	13.5	7.0	---	---	8.5	16.0	16.5	23.5	27.0	27.5	22.0
9	18.5	13.0	8.0	---	---	8.0	16.0	16.0	23.0	28.0	28.0	22.5
10	17.5	13.5	8.0	---	---	9.0	14.0	16.5	24.0	30.0	27.0	22.0
11	17.5	11.0	7.5	---	3.0	8.0	15.5	16.0	24.5	30.5	27.5	22.5
12	17.0	10.5	8.0	---	1.5	9.0	15.0	17.0	24.0	30.0	27.0	22.0
13	16.5	11.5	7.0	---	4.0	13.0	16.0	19.0	23.5	29.5	26.5	22.5
14	15.5	12.0	7.5	---	5.5	12.0	15.5	18.0	24.0	28.5	26.0	21.5
15	15.0	12.0	6.0	---	4.0	11.0	14.0	17.0	24.5	27.0	27.0	21.0
16	17.0	10.5	6.5	---	6.0	10.5	14.5	17.5	25.0	28.0	26.0	21.5
17	18.0	11.0	5.0	---	8.0	9.0	14.0	17.0	26.5	27.5	---	19.0
18	16.5	9.5	3.5	---	---	11.0	16.0	16.0	27.0	28.5	---	17.0
19	17.0	8.0	1.0	---	11.0	8.0	17.5	15.5	27.0	29.0	---	16.5
20	16.0	8.5	.0	---	9.0	7.0	16.0	15.0	26.0	27.5	---	17.5
21	16.5	9.0	---	---	10.0	7.5	15.0	15.5	27.0	28.0	---	19.0
22	15.5	9.5	---	---	10.5	7.0	16.5	16.5	27.5	27.0	---	19.5
23	13.0	8.0	---	---	9.0	6.5	15.0	17.0	27.0	28.0	---	19.0
24	12.0	7.0	---	---	7.0	9.0	13.0	17.0	27.5	28.5	28.0	18.5
25	12.5	9.0	---	---	8.5	10.0	14.0	17.5	26.0	28.0	28.5	18.0
26	11.0	7.0	---	---	9.0	9.0	16.5	18.0	26.5	28.5	27.0	17.0
27	9.5	8.0	---	---	11.0	10.0	18.0	18.5	26.0	29.5	28.0	18.0
28	11.0	7.0	---	---	8.0	13.0	20.0	17.0	27.0	28.0	27.0	17.0
29	12.0	8.0	---	4.0	---	14.0	18.0	16.5	26.0	28.0	26.5	17.5
30	13.0	7.5	---	---	---	13.0	19.0	17.0	26.5	27.5	27.0	20.0
31	12.5	---	---	---	---	16.0	---	19.0	---	---	27.5	---
MEAN	15.5	10.0	6.5	4.0	6.5	9.5	16.0	17.0	25.0	28.0	27.5	21.0

WTR YR 1981 MEAN 17.0 MAX 30.5 MIN .0

03165000 CHESTNUT CREEK AT GALAX, VA

LOCATION.--Lat 36°38'45", long 80°55'10", Galax City, Hydrologic Unit 05050001, on right bank 200 ft (61 m) upstream from bridge on State Highway 89 and 1.7 mi (2.7 km) downstream from Wards Mill Branch.

DRAINAGE AREA.--39.4 mi² (102.0 km²).

PERIOD OF RECORD.--September 1944 to current year.

REVISED RECORDS.--WSP 1385: 1953.

GAGE.--Water-stage recorder. Concrete control since Aug. 30, 1979. Datum of gage is 2,344.17 ft (714.503 m) National Geodetic Vertical Datum of 1929. Prior to June 25, 1948, nonrecording gage, and June 25, 1948, to May 28, 1953, water-stage recorder, at site 200 ft (61 m) upstream at datum 0.86 ft (0.262 m) higher.

REMARKS.--Records fair. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--37 years, 67.4 ft³/s (1.909 m³/s), 23.23 in/yr (590 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,980 ft³/s (198 m³/s) Oct. 17, 1947, gage height, 14.4 ft (4.39 m), from floodmark, site and datum then in use, from rating curve extended above 2,200 ft³/s (62 m³/s) on basis of two slope-area and one contracted-opening measurements at gage heights 9.5 ft (2.90 m), 14.4 ft (4.39 m), and 17.4 ft (5.30 m), respectively, site and datum then in use; minimum, 12 ft³/s (0.34 m³/s) Aug. 25-27, 28-30, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Aug. 14, 1940, reached a stage of 17.4 ft (5.30 m), at site and datum used 1944-53, discharge, 11,000 ft³/s (312 m³/s) by contracted-opening measurement.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,080 ft³/s (30.6 m³/s) at 0030 hours Feb. 11, gage height, 3.67 ft (1.119 m), no other peak above base of 850 ft³/s (24 m³/s); minimum, 12 ft³/s (0.34 m³/s) Aug. 25-27, 28-30; minimum gage height, 1.01 ft (0.308 m) Aug. 26, 28, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	49	37	37	35	40	40	53	33	41	36	20	14
2	38	36	37	34	219	36	45	31	45	48	19	21
3	34	35	36	30	59	35	42	30	41	49	20	34
4	34	37	35	25	45	41	41	30	37	37	19	41
5	53	37	35	19	40	50	48	29	36	30	18	31
6	49	36	35	27	35	42	44	29	40	34	20	24
7	37	35	35	34	32	41	41	32	58	30	21	26
8	35	35	34	34	30	38	40	30	37	26	19	26
9	34	35	35	32	41	37	42	28	35	24	19	23
10	33	34	37	32	156	35	41	30	34	22	18	20
11	32	33	34	24	519	34	40	89	33	21	17	20
12	30	32	34	20	85	33	38	38	31	28	16	19
13	29	30	33	21	85	32	37	34	32	27	15	18
14	28	31	33	30	51	31	40	32	32	22	14	18
15	29	35	32	34	43	30	46	43	29	21	13	42
16	30	36	32	33	42	30	38	35	27	20	13	103
17	33	37	32	21	42	31	38	33	26	25	15	31
18	38	43	31	23	46	30	40	32	26	21	16	25
19	49	37	30	25	60	30	37	40	27	21	15	22
20	36	35	29	32	77	29	61	77	26	21	15	21
21	34	34	22	34	52	28	42	77	25	19	14	20
22	33	34	20	35	47	29	37	42	23	18	13	19
23	32	35	34	34	130	33	37	37	22	17	13	18
24	31	54	34	34	72	42	40	35	22	23	13	17
25	112	44	30	35	55	53	36	34	21	37	13	17
26	52	38	23	34	48	57	35	33	24	34	12	17
27	41	47	30	34	44	52	35	189	21	23	13	17
28	40	52	34	34	42	45	34	236	20	24	12	16
29	38	41	36	33	---	42	33	83	19	36	12	16
30	40	40	38	34	---	107	34	54	27	23	13	16
31	38	---	37	25	---	70	---	44	---	21	13	---
TOTAL	1221	1125	1014	931	2237	1263	1215	1619	917	838	483	752
MEAN	39.4	37.5	32.7	30.0	79.9	40.7	40.5	52.2	30.6	27.0	15.6	25.1
MAX	112	54	38	35	519	107	61	236	58	49	21	103
MIN	28	30	20	19	30	28	33	28	19	17	12	14
CFSM	1.00	.95	.83	.76	2.03	1.03	1.03	1.33	.78	.69	.40	.64
IN.	1.15	1.06	.96	.88	2.11	1.19	1.15	1.53	.87	.79	.46	.71

CAL YR 1980 TOTAL 25062 MEAN 68.5 MAX 980 MIN 20 CFSM 1.74 IN 23.66
WTR YR 1981 TOTAL 13615 MEAN 37.3 MAX 519 MIN 12 CFSM .95 IN 12.85

03166800 GLADE CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°55'51", long 80°54'02", Wythe County, Hydrologic Unit 05050001, on right downstream abutment of bridge on State Highway 629, 1.0 mi (1.6 km) southwest of Grahams Forge, and at mile 0.4 (0.6 km).

DRAINAGE AREA.--7.15 mi² (18.52 km²).

PERIOD OF RECORD.--May 1976 to current year.

GAGE.--Water-stage recorder. Concrete control since June 1, 1979. Altitude of gage is 1,972 ft (600 m), from topographic map.

REMARKS.--Records fair. Recording rain gage at station (discontinued September 1981). Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--5 years, 0.93 ft³/s (0.026 m³/s), 1.77 in/yr (45 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,100 ft³/s (31.2 m³/s) June 16, 1976, gage height, 5.11 ft (1.558 m), from rating curve extended above 60 ft³/s (1.7 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.02 ft³/s (<0.001 m³/s) Sept. 14, 1981; minimum gage height, 1.36 ft (0.415 m) Sept. 7, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.8 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
June 19	1815	246	6.97	3.64	1.109	July 5	2145	*279	7.90	3.74	1.140

Minimum discharge, 0.02 ft³/s (<0.001 m³/s) Sept. 14, gage height, 1.39 ft (0.424 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.61	.30	.34	.20	.22	.46	.48	.22	.82	.33	.16	.15
2	.39	.27	.29	.17	4.0	.42	.41	.20	.80	.31	.16	.20
3	.35	.25	.27	.11	.80	.37	.37	.20	.62	.34	.16	.16
4	.30	.30	.23	.08	.43	.55	.35	.18	.53	.26	.15	.19
5	.44	.28	.20	.05	.25	.65	.39	.15	.47	22	.12	.14
6	.35	.23	.18	.04	.20	.49	.32	.12	.44	6.6	.18	.23
7	.30	.17	.17	.07	.17	.44	.29	.15	.51	1.1	.16	.21
8	.27	.13	.16	.10	.20	.40	.27	.13	.39	.67	.29	.16
9	.25	.10	.22	.12	.27	.38	.29	.11	.33	.56	.16	.12
10	.24	.08	.27	.10	.47	.35	.29	.12	.34	.46	.09	.11
11	.23	.07	.27	.08	6.9	.35	.27	1.6	.31	.54	.09	.10
12	.22	.07	.26	.06	.75	.33	.25	.32	4.1	.46	.19	.07
13	.22	.06	.23	.15	.58	.31	.36	.26	1.5	.37	.22	.05
14	.21	.20	.23	.18	.50	.32	.45	.22	.69	.74	.17	.04
15	.21	.29	.22	.19	.45	.29	.38	.36	.49	.36	.12	.17
16	.21	.28	.22	.14	.35	.32	.29	.22	.41	.42	.11	.18
17	.22	.41	.21	.10	.32	.28	.35	.20	.36	.29	.10	.09
18	.91	.36	.21	.13	.35	.27	.30	.20	.33	.23	.10	.07
19	.69	.29	.20	.17	.40	.30	.27	.84	22	.22	.09	.06
20	.45	.27	.18	1.9	1.4	.26	.89	1.4	2.1	.20	.09	.06
21	.37	.25	.14	1.1	.88	.27	.47	1.2	.91	.20	.08	.05
22	.34	.23	.11	.34	.70	.27	.39	.56	.63	.19	.08	.05
23	.30	.27	.25	.24	1.7	.39	.35	.44	.53	.16	.07	.07
24	.30	.46	.26	.17	1.2	.63	.35	.37	.45	.30	.07	.10
25	.90	.36	.20	.12	.76	.54	.28	.32	.40	.26	.06	.12
26	.56	.32	.13	.09	.61	.47	.27	.27	.38	.19	.05	.09
27	.46	.53	.20	.08	.53	.41	.25	.85	.29	.16	.07	.08
28	.42	.49	.26	.21	.50	.39	.22	8.5	.28	.18	.11	.07
29	.37	.39	.29	.19	---	.36	.22	3.7	.25	.21	.14	.06
30	.35	.35	.30	.13	---	.69	.23	1.6	.32	.19	.13	.06
31	.33	---	.22	.17	---	.54	---	.98	---	.16	.12	---
TOTAL	11.77	8.06	6.92	6.98	25.89	12.50	10.30	25.99	41.98	38.66	3.89	3.31
MEAN	.38	.27	.22	.23	.92	.40	.34	.84	1.40	1.25	.13	.11
MAX	.91	.53	.34	1.9	6.9	.69	.89	8.5	22	22	.29	.23
MIN	.21	.06	.11	.04	.17	.26	.22	.11	.25	.16	.05	.04
CFSM	.05	.04	.03	.03	.13	.06	.05	.12	.20	.18	.02	.02
IN.	.06	.04	.04	.04	.13	.07	.05	.14	.22	.20	.02	.02

CAL YR 1980 TOTAL 254.81 MEAN .70 MAX 22 MIN .06 CFSM .10 IN 1.33
WTR YR 1981 TOTAL 196.25 MEAN .54 MAX 22 MIN .04 CFSM .08 IN 1.02

03167000 REED CREEK AT GRAHAMS FORGE, VA

LOCATION.--Lat 36°56'22", long 80°53'13", Wythe County, Hydrologic Unit 05050001, on left bank 20 ft (6 m) downstream from highway bridge at Grahams Forge, 2.2 mi (3.5 km) downstream from Glade Creek, and at mile 7.3 (11.7 km).

DRAINAGE AREA.--247 mi² (640 km²).

PERIOD OF RECORD.--July 1908 to September 1916, January 1927 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1235: 1912-13, 1915-16. WSP 1275: 1911, 1927-28(M), 1930-34(M). WSP 1705: 1913(M), 1916(M), 1957 calendar year runoff. WSP 1725: 1915 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,924.65 ft (586.633 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1916, nonrecording gage at same site at datum 0.68 ft (0.207 m) lower. Feb. 3, 1927, to Oct. 28, 1934, and June 11, 1974, to July 22, 1975, nonrecording gage, at present site and datum.

REMARKS.--Records good. Occasional diurnal fluctuation at low flow caused by mills above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--62 years, 267 ft³/s (7.561 m³/s), 14.68 in/yr (373 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft³/s (496 m³/s) July 16, 1916, gage height, 11.4 ft (3.47 m), present datum, from floodmarks, from rating curve extended above 7,600 ft³/s (220 m³/s) on basis of velocity-area study and slope-area measurement at gage heights 11.4 ft (3.47 m) and 10.01 ft (3.051 m), respectively; minimum observed, about 5 ft³/s (0.1 m³/s) Dec. 22, 1909, gage height, 0.49 ft (0.149 m), present datum, result of freezeup; minimum daily, 22 ft³/s (0.62 m³/s) Jan. 30, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,220 ft³/s (62.9 m³/s) May 28, gage height, 4.00 ft (1.219 m), no peak above base of 2,300 ft³/s (65 m³/s); minimum, 31 ft³/s (0.88 m³/s) Jan. 5, gage height, 1.22 ft (0.372 m), result of freezeup; minimum daily, 40 ft³/s (1.13 m³/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99	85	94	85	77	185	360	140	492	147	87	71
2	93	83	91	82	253	170	288	129	640	124	86	70
3	85	80	92	77	297	153	227	119	631	116	85	73
4	83	82	91	60	130	148	193	116	500	112	84	74
5	85	82	88	40	100	219	184	111	451	132	81	105
6	89	81	87	76	85	434	179	110	388	157	84	93
7	84	80	86	80	80	383	159	109	463	124	92	222
8	80	78	84	68	75	281	149	105	492	111	121	112
9	79	78	86	60	99	224	146	100	388	103	132	89
10	77	76	93	55	115	189	148	98	323	96	99	81
11	75	76	93	50	436	171	140	330	310	95	88	75
12	73	76	93	45	459	156	135	571	256	121	85	71
13	72	76	90	63	332	145	135	304	261	95	82	69
14	73	76	87	70	262	138	141	209	245	388	79	67
15	73	78	85	72	193	135	162	219	200	579	76	73
16	73	86	84	60	165	129	169	209	181	219	75	92
17	73	87	83	50	157	135	161	175	167	171	77	98
18	82	101	80	55	167	136	233	161	157	138	76	83
19	122	106	79	67	179	137	272	219	205	141	74	75
20	102	99	77	72	550	132	330	1260	167	132	72	72
21	89	90	54	77	605	126	622	1530	147	119	69	69
22	83	85	58	84	364	122	411	837	135	109	68	69
23	80	84	79	88	386	135	297	500	129	103	68	66
24	79	93	79	86	714	145	261	344	121	100	67	64
25	118	98	76	81	468	228	234	256	119	108	66	63
26	145	101	55	81	322	303	205	205	121	111	65	63
27	123	102	81	82	249	268	181	224	121	108	64	63
28	104	108	82	85	205	229	161	1760	112	98	64	61
29	97	104	80	86	---	192	147	1620	107	101	63	59
30	93	99	87	88	---	224	144	926	108	98	63	60
31	89	---	88	60	---	433	---	622	---	91	65	---
TOTAL	2772	2630	2562	2185	7524	6205	6574	13618	8137	4447	2457	2402
MEAN	89.4	87.7	82.6	70.5	269	200	219	439	271	143	79.3	80.1
MAX	145	108	94	88	714	434	622	1760	640	579	132	222
MIN	72	76	54	40	75	122	135	98	107	91	63	59
CFSM	.36	.36	.33	.29	1.09	.81	.89	1.78	1.10	.58	.32	.32
IN.	.42	.40	.39	.33	1.13	.93	.99	2.05	1.23	.67	.37	.36

CAL YR 1980 TOTAL 93713 MEAN 256 MAX 2340 MIN 54 CFSM 1.04 IN 14.11
WTR YR 1981 TOTAL 61513 MEAN 169 MAX 1760 MIN 40 CFSM .68 IN 9.26

03167500 BIG REED ISLAND CREEK NEAR ALLISONIA, VA

LOCATION.--Lat 36°53'20", long 80°43'40", Pulaski County, Hydrologic Unit 05050001, on left bank 700 ft (213 m) downstream from highway bridge, 3.5 mi (5.6 km) southeast of Allisonia, 4 mi (6 km) upstream from Little Reed Island Creek, and at mile 4.5 (7.2 km).

DRAINAGE AREA.--278 mi^2 (720 km^2).

PERIOD OF RECORD.--August 1908 to September 1916, April 1939 to current year.

REVISED RECORDS.--WSP 1033: 1939(P), 1940, 1941-43(P). WSP 1305: 1912(M). WSP 1625: 1940, 1945(M), 1947, 1951, 1952(M).

GAGE.--Water-stage recorder. Datum of gage is 1,902.74 ft (579.955 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 30, 1916, nonrecording gage at site 4 mi (6 km) downstream at different datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--50 years, 401 ft^3/s (11.36 m^3/s), 19.59 in/yr (498 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft^3/s (411 m^3/s) Sept. 30, 1959, gage height, 12.54 ft (3.822 m), from rating curve extended above 6,000 ft^3/s (170 m^3/s) on basis of slope-area measurement of peak flow; minimum, 63 ft^3/s (1.78 m^3/s) Jan. 20, 1971, gage height, 1.63 ft (0.497 m), result of freezeup; minimum daily, 75 ft^3/s (2.12 m^3/s) Jan. 5, 1981.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,480 ft^3/s (98.6 m^3/s) Feb. 11, gage height, 5.89 ft (1.795 m), no peak above base of 3,500 ft^3/s (99 m^3/s); minimum daily, 75 ft^3/s (2.12 m^3/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	225	179	194	218	184	224	389	183	359	198	109	112
2	204	171	185	189	1620	210	278	170	321	162	104	111
3	174	167	178	160	496	197	247	162	412	199	104	101
4	159	186	169	120	220	196	223	158	542	218	103	330
5	178	259	171	75	190	304	250	154	376	181	98	397
6	343	200	169	130	160	317	338	152	295	268	98	187
7	224	180	166	150	150	250	257	154	349	253	130	251
8	183	175	165	170	140	219	228	156	296	170	454	180
9	172	171	169	150	178	205	228	146	246	142	230	147
10	165	167	192	130	241	196	279	147	222	129	142	128
11	160	160	184	110	2390	189	235	253	246	122	119	115
12	152	156	168	95	678	184	216	256	214	155	109	108
13	146	156	164	100	437	178	204	181	245	179	103	104
14	144	157	161	140	324	177	202	162	219	202	98	101
15	147	168	157	160	273	169	264	224	188	189	96	108
16	150	185	156	150	252	169	227	230	171	148	94	554
17	149	181	156	100	238	172	209	177	160	147	92	329
18	163	259	148	110	255	166	256	171	156	132	93	197
19	303	230	161	120	278	166	224	403	166	121	93	155
20	234	186	148	140	457	158	337	637	174	119	91	137
21	178	172	90	150	375	155	448	674	171	116	92	127
22	167	171	100	180	303	157	306	389	150	112	87	120
23	163	169	150	210	449	179	262	278	137	102	84	115
24	161	219	221	200	597	204	276	227	131	113	82	110
25	328	334	150	190	420	247	253	197	131	218	81	108
26	402	226	110	180	340	248	219	178	127	211	79	106
27	233	218	160	170	275	228	207	245	121	138	78	106
28	201	301	200	180	237	209	194	1360	116	118	78	104
29	193	246	250	190	---	190	185	948	115	224	78	100
30	186	209	278	180	---	395	192	506	123	153	76	98
31	191	---	259	120	---	800	---	433	---	117	81	---
TOTAL	6178	5958	5329	4667	12157	7058	7633	9711	6679	5056	3456	4946
MEAN	199	199	172	151	434	228	254	313	223	163	111	165
MAX	402	334	278	218	2390	800	448	1360	542	268	454	554
MIN	144	156	90	75	140	155	185	146	115	102	76	98
CFSM	.72	.72	.62	.54	1.56	.82	.91	1.13	.80	.59	.40	.59
IN.	.83	.80	.71	.62	1.63	.94	1.02	1.30	.89	.68	.46	.66

CAL YR 1980 TOTAL 150993 MEAN 413 MAX 6670 MIN 90 CFSM 1.49 IN 20.20
WTR YR 1981 TOTAL 78828 MEAN 216 MAX 2390 MIN 75 CFSM .78 IN 10.55

03168000 NEW RIVER AT ALLISONIA, VA

LOCATION.--Lat 36°56'15", long 80°44'45", Pulaski County, Hydrologic Unit 05050001, on left bank 0.2 mi (0.3 km) downstream from Big Reed Island Creek and 0.5 mi (0.8 km) upstream from Allisonia.

DRAINAGE AREA.--2,202 mi^2 (5,703 km^2).

PERIOD OF RECORD.--September 1929 to current year.

REVISED RECORDS.--WSP 783: Drainage area. WSP 823: 1936. WSP 1305: 1933(M).

GAGE.--Water-stage recorder. Datum of gage is 1,848.36 ft (563.380 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Large diurnal fluctuation and some regulation by powerplant 25 mi (40 km) above station. Corps of Engineers gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--52 years, 3,205 ft^3/s (90.77 m^3/s), 19.77 in/yr (502 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 185,000 ft^3/s (5,240 m^3/s) Aug. 14, 1940, gage height, 23.42 ft (7.138 m), from rating curve extended above 52,000 ft^3/s (1,500 m^3/s) on basis of flood records for other stations on New River; minimum, 412 ft^3/s (11.7 m^3/s) Sept. 7, 1930, gage height, 0.47 ft (0.143 m); minimum daily, 453 ft^3/s (12.8 m^3/s) Sept. 6, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 17,500 ft^3/s (500 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 11	2030	18800	532	5.68	1.731	May 28	1415	*29200	827	7.35	2.240

Minimum daily discharge, 500 ft^3/s (14.2 m^3/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1760	1560	1770	1320	860	2420	4560	1940	5660	1820	983	786
2	1720	1470	1630	1300	4170	2730	3860	1700	5430	1860	882	882
3	1920	1450	1540	1140	6270	2200	3120	1740	5480	1630	1320	1020
4	1640	1440	1520	900	7130	2090	2440	1870	5690	1960	1090	1890
5	1400	1530	1410	500	2000	2480	2670	1670	4990	1750	1090	2090
6	1760	1440	1380	894	1200	3210	2860	1630	4110	2240	914	1610
7	1820	1350	1420	1010	1100	3880	2640	1660	5410	2040	1070	1530
8	1770	1350	1330	1090	1100	3300	2260	1450	6900	1960	1650	1570
9	1520	1260	1270	1180	1200	2900	2150	1360	5230	1510	1490	1210
10	1290	1300	1330	1240	1490	2470	2310	1380	4340	1510	1270	1100
11	1180	1770	1300	1050	10800	2280	1910	2800	3470	1060	1290	927
12	1210	1530	1670	700	11000	2270	2000	4450	3430	1310	1020	940
13	1170	1100	1310	750	5320	1770	2110	3310	2650	1890	952	647
14	1220	1200	1380	937	3730	1820	1930	2480	2900	1810	708	736
15	1110	1260	1640	1190	3130	1790	1950	2220	3090	1910	909	838
16	1200	1350	1320	1000	2690	1820	2340	2420	2510	1550	911	2500
17	1160	1420	1380	700	2460	1970	2200	2280	2520	1650	791	3000
18	1170	1620	1310	750	2420	1720	2030	2380	1680	1120	917	2600
19	1650	1710	1270	850	2980	2000	2640	2740	2150	1100	955	950
20	1950	1630	1000	1000	4320	1910	3520	5270	1890	1860	929	1000
21	1750	1440	800	1230	5560	1460	5910	11700	1990	1390	880	1400
22	1350	1370	700	1280	4760	1430	5490	10100	2160	1150	781	1200
23	1400	1280	990	1440	4520	2020	4040	5780	1680	1240	750	760
24	1210	1550	1300	1070	5950	2130	3510	4170	1630	889	790	720
25	1780	1970	1290	1170	5210	2190	3060	3300	1550	1310	766	1000
26	3190	2250	750	1290	3970	2500	2870	3140	1520	1360	728	900
27	2900	1960	800	1510	3200	2720	2840	2730	1230	1360	690	700
28	2170	2110	1180	1440	2560	2430	2300	21100	1510	1230	764	720
29	1640	2190	1700	1210	---	2240	2220	16300	1760	1360	718	850
30	1430	1990	1780	1620	---	3220	2120	9860	1450	1640	704	800
31	1600	---	1740	841	---	5040	---	6970	---	1300	774	---
TOTAL	50040	46850	41210	33602	111100	74310	85860	141900	96010	47769	29486	36876
MEAN	1614	1562	1329	1084	3968	2397	2862	4577	3200	1541	951	1229
MAX	3190	2250	1780	1620	11000	5040	5910	21100	6900	2240	1650	3000
MIN	1110	1100	700	500	860	1430	1910	1360	1230	889	690	647
CFSM	.73	.71	.60	.49	1.80	1.09	1.30	2.08	1.45	.70	.43	.56
IN.	.85	.79	.70	.57	1.88	1.26	1.45	2.40	1.62	.81	.50	.62

CAL YR 1980 TOTAL 1222210 MEAN 3339 MAX 29200 MIN 700 CFSM 1.52 IN 20.65
WTR YR 1981 TOTAL 795013 MEAN 2178 MAX 21100 MIN 500 CFSM .99 IN 13.43

03169000 CLAYTOR RESERVOIR NEAR RADFORD, VA

LOCATION.--Lat 37°04'28", long 80°35'05", Pulaski County, Hydrologic Unit 05050001, at Claytor Dam on New River, 0.5 mi (0.8 km) upstream from Little River, and 5.5 mi (8.8 km) upstream from Radford.

DRAINAGE AREA.--2,382 mi² (6,169 km²).

PERIOD OF RECORD.--May 1939 to current year (monthly figures only).

REVISED RECORDS.--WSP 2108: 1961-65 monthend contents and change in contents.

GAGE.--Water-stage recorder. Datum of gage is approximately National Geodetic Vertical Datum of 1929 (levels by Appalachian Power Co.). Prior to Sept. 11, 1943, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by gravity overflow concrete dam. Spillway with crest at elevation 1,818.5 ft (554.28 m) is equipped with 9 lift gates 30 ft (9.1 m) high by 50 ft (15.2 m) wide. Dam completed and storage began May 22, 1939; water in reservoir reached minimum pool elevation in January 1940. Total level-pool capacity at elevation 1,847.0 ft (562.97 m), 1.5 ft (0.46 m) below top of gates, is 230,100 acre-ft (284 hm³) of which about 100,000 acre-ft (123 hm³) is controlled storage above minimum pool elevation of 1,820.0 ft (554.74 m). Reservoir is used for hydroelectric power and recreation.

COOPERATION.--Records furnished by Appalachian Power Co.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1845.40	222900	
Oct. 31	1845.04	221400	-1500
Nov. 30	1845.80	224700	+3300
Dec. 31	1845.45	223200	-1500
CAL YR 1980			+2100
Jan. 31	1845.47	223200	0
Feb. 28	1845.10	221700	-1500
Mar. 31	1844.70	219900	-1800
Apr. 30	1844.22	217900	-2000
May 31	1845.70	224200	+6300
June 30	1844.45	218900	-5300
July 31	1844.99	221200	+2300
Aug. 31	1845.15	221900	+700
Sept. 30	1844.81	220400	-1500
WTR YR 1981			-2500

03170000 LITTLE RIVER AT GRAYSONTON, VA

LOCATION.--Lat 37°02'15", long 80°33'25", Pulaski County, Hydrologic Unit 05050001, on left bank at upstream side of highway bridge at Snowville, 0.5 mi (0.8 km) southeast of Graysonton, 7 mi (11 km) south of Radford, and at mile 8.6 (13.8 km).

DRAINAGE AREA.--300 mi² (777 km²).

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 823: 1929-36. WSP 1143: 1945. WSP 1305: 1929(M). WSP 1555: Drainage area (at site used 1928-41). WSP 1625: 1951(M). WSP 1725: 1936(M).

GAGE.--Water-stage recorder. Datum of gage is 1,816.04 ft (553.529 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 20, 1931, nonrecording gage at bridge 1.0 mi (1.6 km) downstream at datum 17.99 ft (5.483 m) lower. Nov. 20, 1931, to Nov. 12, 1941, water-stage recorder 1.2 mi (1.9 km) downstream at datum 20.58 ft (6.273 m) lower.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--53 years, 364 ft³/s (10.31 m³/s), 16.48 in/yr (419 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,800 ft³/s (646 m³/s) June 21, 1972, gage height, 13.40 ft (4.084 m), from rating curve extended above 16,000 ft³/s (450 m³/s) on basis of slope-area measurements at gage heights 12.76 ft (3.889 m) and 13.40 ft (4.084 m); minimum, 21 ft³/s (0.59 m³/s) Feb. 22, 1942, result of freezeup; minimum daily, 50 ft³/s (1.42 m³/s) Sept. 21, 1932.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,720 ft³/s (77.0 m³/s) Feb. 9, gage height, 3.89 ft (1.186 m), no peak above base of 3,000 ft³/s (85 m³/s); minimum, 54 ft³/s (1.53 m³/s) Aug. 29-31, gage height, 0.71 ft (0.216 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	324	152	184	188	1180	230	399	205	300	124	82	75
2	246	145	177	162	278	222	305	189	273	180	80	98
3	180	142	176	136	234	214	260	174	256	176	79	99
4	158	158	177	110	200	214	234	170	247	218	78	162
5	158	222	172	80	170	320	247	162	230	195	78	445
6	273	180	173	106	150	350	291	156	210	187	76	195
7	236	158	167	157	140	278	256	155	226	300	74	291
8	180	152	159	157	330	247	226	157	230	195	251	214
9	164	148	161	142	1740	226	222	152	191	139	286	136
10	156	148	184	130	355	218	238	148	173	117	136	110
11	153	145	191	100	324	210	222	191	176	107	101	95
12	146	139	169	85	300	202	202	256	176	103	92	88
13	137	139	162	90	282	195	195	189	264	103	86	83
14	134	139	160	106	278	195	195	158	226	169	84	80
15	138	145	154	129	273	187	273	191	173	139	80	81
16	139	158	152	120	260	180	256	243	148	130	79	226
17	139	162	153	90	240	180	226	180	136	145	77	282
18	239	210	148	100	250	173	251	161	130	162	76	155
19	251	234	150	127	270	176	243	278	130	117	74	116
20	179	180	125	140	393	169	320	533	136	106	75	103
21	156	158	91	154	376	158	458	547	125	99	74	95
22	151	152	111	168	310	169	334	366	118	92	75	91
23	149	152	159	160	315	176	282	278	116	86	70	88
24	163	180	167	164	393	243	273	226	106	90	66	85
25	335	271	140	188	315	296	256	197	104	118	65	81
26	272	219	100	204	273	320	224	176	112	162	62	80
27	187	192	116	178	251	293	211	177	120	145	59	80
28	166	219	155	169	238	273	202	568	107	113	56	79
29	162	234	178	147	---	243	192	752	98	101	54	77
30	158	202	209	143	---	345	195	428	100	106	54	74
31	158	---	204	110	---	642	---	360	---	90	59	---
TOTAL	5786	5235	4922	4241	10118	7544	7688	8103	5137	4314	2738	3964
MEAN	187	175	159	137	361	243	256	261	171	139	88.3	132
MAX	335	271	209	204	1740	642	458	752	300	300	286	445
MIN	134	139	91	80	140	158	192	148	98	86	54	74
CFSM	.62	.58	.53	.46	1.20	.81	.85	.87	.57	.46	.29	.44
IN.	.72	.65	.61	.53	1.25	.94	.95	1.00	.64	.53	.34	.49

CAL YR 1980 TOTAL 131668 MEAN 360 MAX 3990 MIN 91 CFSM 1.20 IN 16.33
WTR YR 1981 TOTAL 69790 MEAN 191 MAX 1740 MIN 54 CFSM .64 IN 8.65

03171000 NEW RIVER AT RADFORD, VA

LOCATION.--Lat 37°08'30", long 80°34'10", Pulaski County, Hydrologic Unit 05050001, on left bank 2,000 ft (610 m) downstream from bridge on U.S. Highway 11 at Radford, 5 mi (8 km) downstream from Little River, and 5.5 mi (8.8 km) downstream from Claytor Dam.

DRAINAGE AREA.--2,748 mi^3 (7,117 km^2).

PERIOD OF RECORD.--October 1907 to September 1915, August 1939 to current year. Records for August 1898 to September 1907, published in WSP 27, 36, 48, 65, 83, 98, 128, 169, 205, 243, and 536, are unreliable and should not be used. Gage-height records collected at same site since 1895 are contained in reports of the National Weather Service.

REVISED RECORDS.--WSP 873: Drainage area. WSP 953: 1940-41. WSP 1305: 1908-12. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 1,712.16 ft (521.866 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 30, 1939, nonrecording gage at highway bridge 2,000 ft (610 m) upstream at datum 0.85 ft (0.259 m) lower.

REMARKS.--Records good. Flow regulated since 1939 by Claytor Reservoir (station 03169000). Some additional regulation at low flow by dam and powerplant on Little River. Corps of Engineers gage-height telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--50 years, 3,858 ft^3/s (109.3 m^3/s), 19.07 in/yr (484 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 218,000 ft^3/s (6,170 m^3/s) Aug. 14, 1940, gage height, 35.96 ft (10.961 m), from rating curve extended above 76,000 ft^3/s (2,200 m^3/s) on basis of records for other stations on New River and flow over Claytor Dam, computed by Appalachian Power Company; minimum, 165 ft^3/s (4.67 m^3/s) Aug. 25, 27, 1944, gage height, 1.08 ft (0.329 m); minimum daily, 550 ft^3/s (15.6 m^3/s) Aug. 22, 1911.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 16, 1916, reached a stage of 35.7 ft (10.88 m), discharge, 200,000 ft^3/s (5,660 m^3/s), at site and datum used by Geological Survey 1907-15, from reports of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,700 ft^3/s (728 m^3/s) May 29, gage height, 8.64 ft (2.633 m); minimum, 298 ft^3/s (8.44 m^3/s) Dec. 23, gage height, 1.36 ft (0.415 m); minimum daily, 803 ft^3/s (22.7 m^3/s) Aug. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2250	1050	2630	1130	872	1620	6090	3080	8030	2290	815	852
2	2770	912	2730	3050	3750	3040	5620	2100	6790	2230	828	984
3	2730	2160	2190	1080	7020	3990	4090	1050	6110	1510	1340	1320
4	1130	1930	2330	1020	4030	4020	1230	2660	5590	1300	1370	2800
5	1070	1750	2690	2490	2430	3880	999	2220	5510	1270	1600	2470
6	2250	1620	1070	1650	2310	3970	4260	2370	6070	4030	1350	1320
7	2370	1980	1020	1090	1030	1410	5190	2290	6180	4770	1370	2490
8	2610	1080	1820	1150	1140	1790	3660	1980	5350	2860	830	1920
9	2160	1690	2270	1150	2820	4430	3040	1070	5680	2560	1120	1600
10	2560	1760	1930	1090	5080	4230	2120	934	5970	2020	1480	1650
11	1100	1860	1910	1060	8480	4660	1090	3170	5190	1160	1720	1790
12	1060	1760	2200	1500	11700	2550	1030	5390	4310	1010	2010	1000
13	2440	2390	1030	1120	7560	2320	3740	4030	1290	2180	1800	883
14	1600	2740	983	1080	5490	1530	2300	3260	1470	1140	1370	1010
15	1490	1220	1970	1060	1530	848	3080	2660	4470	1810	825	1150
16	1430	910	1720	1090	3580	2930	3430	1100	3880	2050	803	1380
17	1510	2660	1740	980	3460	2010	3060	1750	3670	2930	933	2420
18	1130	2090	1870	1030	3640	1650	1140	3930	3710	1120	925	3330
19	943	2290	1760	1160	4280	1840	1310	5130	3310	931	1050	884
20	2340	1900	1100	1160	4240	2030	5510	5820	1120	2190	812	980
21	2200	2000	989	1460	4680	1090	8040	10800	1140	1580	909	2190
22	2280	1090	1680	2560	5740	860	6010	10200	3670	1810	825	1150
23	2170	1030	1720	1910	5100	3800	5050	6350	2910	1880	819	1010
24	1550	2240	1600	1000	6420	4760	4210	4500	2220	2070	1070	990
25	1070	2450	955	988	6200	3220	3140	3990	2580	926	1080	958
26	2500	3410	1550	1700	4570	2250	1130	4840	2380	946	1040	872
27	4120	2300	1110	1840	4360	3800	3750	6210	1100	2010	882	876
28	2540	2800	950	1840	2150	1180	2740	12600	1090	1890	893	997
29	2520	1620	1590	1950	---	1060	2330	17800	2640	1910	804	976
30	2940	1490	1580	1740	---	5360	3410	12200	2240	1360	808	874
31	2030	---	1800	1030	---	6380	---	9320	---	1460	921	---
TOTAL	62863	56182	52487	44158	123662	88508	101799	154804	115670	59203	34402	43126
MEAN	2028	1873	1693	1424	4417	2855	3393	4994	3856	1910	1110	1438
MAX	4120	3410	2730	3050	11700	6380	8040	17800	8030	4770	2010	3330
MIN	943	910	950	980	872	848	999	934	1090	926	803	852
(*)	-25	+55	-24	+1	-29	-28	-35	+103	-90	+38	+11	-24
MEAN‡	2003	1928	1669	1425	4388	2827	3358	5097	3766	1948	1121	1414
CFSM‡	.73	.70	.61	.52	1.60	1.03	1.22	1.85	1.37	.71	.41	.51
IN‡	.84	.78	.70	.60	1.66	1.19	1.36	2.14	1.53	.82	.47	.57

CAL YR 1980 TOTAL 1479515 MEAN 4042 MAX 31300 MIN 849 MEAN‡ 4045 CFSM‡ 1.47 IN‡ 20.04
WTR YR 1981 TOTAL 936864 MEAN 2567 MAX 17800 MIN 803 MEAN‡ 2564 CFSM‡ .93 IN‡ 12.67

* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; furnished by Appalachian Power Co.
‡ Adjusted for change in contents.

03173000 WALKER CREEK AT BANE, VA

LOCATION.--Lat 37°16'05", long 80°42'35", Giles County, Hydrologic Unit 05050002, on left bank at Bane, 0.2 mi (0.3 km) downstream from bridge on State Highway 100, 0.2 mi (0.3 km) downstream from Sugar Run, and at mile 7.9 (12.7 km).

DRAINAGE AREA.--305 mi^2 (790 km^2).

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.--WSP 1143: 1939(M), 1940, 1944, 1946. WSP 1305: 1938(M).

GAGE.--Water-stage recorder. Datum of gage is 1,665.92 ft (507.772 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 327 ft^3/s (9.261 m^3/s), 14.56 in/yr (370 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft^3/s (479 m^3/s) Apr. 5, 1977, gage height, 16.69 ft (5.087 m), from rating curve extended above 7,200 ft^3/s (200 m^3/s) on basis of slope-area measurement at gage height 16.50 ft (5.029 m); minimum, 15 ft^3/s (0.42 m^3/s) Dec. 21, 1958, gage height, 2.42 ft (0.738 m), result of freezeup; minimum daily, 24 ft^3/s (0.68 m^3/s) Sept. 27, 28, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in September 1878 reached a stage of about 23.5 ft (7.2 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,150 ft^3/s (118 m^3/s) at 2100 hours May 28, gage height, 9.24 ft (2.816 m), no other peak above base of 4,000 ft^3/s (110 m^3/s); minimum, 30 ft^3/s (0.85 m^3/s) Jan. 4, gage height, 2.70 ft (0.823 m), result of freezeup; minimum daily, 32 ft^3/s (0.91 m^3/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	65	86	72	56	243	446	185	611	80	55	36
2	68	62	82	67	136	220	400	167	670	109	52	60
3	68	61	80	61	287	194	333	151	685	96	51	48
4	63	60	77	40	110	183	296	140	499	85	50	59
5	63	60	74	32	70	361	273	132	428	80	57	80
6	63	60	73	45	65	680	259	125	368	81	44	243
7	61	61	70	59	60	539	222	122	643	99	45	320
8	60	59	69	57	55	414	201	117	620	99	60	180
9	59	59	73	50	60	333	194	112	476	80	99	109
10	57	59	78	45	112	281	203	105	393	72	74	84
11	56	57	81	35	273	248	217	519	383	66	58	72
12	53	57	80	40	435	222	222	954	296	63	56	63
13	52	55	74	46	330	201	208	576	261	62	72	58
14	53	55	72	49	287	185	208	421	232	70	72	56
15	53	57	69	53	220	170	213	386	201	187	58	56
16	51	60	68	45	198	159	217	400	172	159	57	57
17	50	66	67	35	180	170	225	333	153	136	52	66
18	53	80	65	39	187	165	284	287	138	127	49	70
19	65	120	65	42	201	159	314	311	132	96	48	61
20	63	105	62	55	368	155	476	1280	129	104	46	55
21	68	85	35	66	523	145	815	1390	120	118	43	52
22	61	76	45	69	393	142	594	916	110	93	41	52
23	58	72	57	74	476	151	461	616	102	76	39	49
24	55	78	65	73	975	161	397	461	95	70	38	47
25	70	88	57	68	594	290	333	364	91	82	37	45
26	112	105	40	68	428	450	278	293	88	74	36	44
27	118	96	55	72	333	461	243	270	91	69	35	43
28	88	93	63	69	275	417	215	2070	82	62	35	42
29	74	95	66	70	---	354	196	2800	76	63	34	41
30	70	92	70	73	---	364	189	1330	76	58	33	41
31	69	---	73	45	---	527	---	845	---	56	38	---
TOTAL	2020	2198	2091	1713	7687	8744	9132	18178	8421	2772	1564	2289
MEAN	65.2	73.3	67.5	55.3	275	282	304	586	281	89.4	50.5	76.3
MAX	118	120	86	74	975	680	815	2800	685	187	99	320
MIN	50	55	35	32	55	142	189	105	76	56	33	36
CFSM	.21	.24	.22	.18	.90	.93	1.00	1.92	.92	.29	.17	.25
IN.	.25	.27	.26	.21	.94	1.07	1.11	2.22	1.03	.34	.19	.28

CAL YR 1980 TOTAL 114066 MEAN 312 MAX 2860 MIN 35 CFSM 1.02 IN 13.91
WTR YR 1981 TOTAL 66809 MEAN 183 MAX 2800 MIN 32 CFSM .60 IN 8.15

03175500 WOLF CREEK NEAR NARROWS, VA

LOCATION.--Lat 37°18'20", long 80°51'00", Giles County, Hydrologic Unit 05050002, on right bank at downstream side of bridge on State Highway 724, 2.8 mi (4.5 km) southwest of Narrows, and at mile 3.5 (5.6 km).

DRAINAGE AREA.--223 mi² (578 km²).

PERIOD OF RECORD.--July 1908 to September 1916, March 1938 to current year.

REVISED RECORDS.--WSP 973: 1940-41(M). WSP 1235: 1912-13, 1915-16. WSP 1505: 1940, monthly and yearly runoff. WSP 1725: 1913(M), 1915-16(M), 1941 calendar year runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,583.83 ft (482.751 m) National Geodetic Vertical Datum of 1929. July 22, 1908, to Sept. 30, 1916, and Mar. 31 to Nov. 7, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--51 years, 300 ft³/s (8.496 m³/s), 18.27 in/yr (464 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,900 ft³/s (365 m³/s) Jan. 29, 1957, gage height, 12.55 ft (3.825 m), from floodmark in gage well, 13.8 ft (4.21 m), from floodmark at downstream side of bridge, from rating curve extended above 5,700 ft³/s (160 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 8.8 ft³/s (0.25 m³/s) Dec. 25, 1953, gage height, 2.28 ft (0.695 m), result of freezeup; minimum daily, 16 ft³/s (0.45 m³/s) Sept. 17, 18, 26-28, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,750 ft³/s (106 m³/s) at 1700 hours May 28, gage height, 8.08 ft (2.463 m), no other peak above base of 2,200 ft³/s (62 m³/s); minimum, 17 ft³/s (0.48 m³/s) Jan. 5, gage height, 2.31 ft (0.704 m), result of freezeup; minimum daily, 25 ft³/s (0.71 m³/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	48	72	62	63	261	369	233	692	121	65	44
2	44	45	69	57	207	233	386	201	507	119	63	58
3	44	42	67	48	300	207	342	183	513	95	60	55
4	42	44	67	30	110	195	304	166	412	86	58	99
5	41	46	63	25	60	513	296	155	407	82	55	137
6	41	49	60	45	55	789	296	147	347	86	54	92
7	40	46	60	45	50	646	261	140	617	137	67	97
8	38	44	58	46	45	495	244	133	564	117	114	72
9	38	42	58	50	55	394	240	121	457	90	137	60
10	37	42	60	45	110	324	276	114	382	78	92	54
11	36	42	70	29	210	276	265	504	365	70	74	48
12	35	41	70	36	365	244	258	667	288	65	106	42
13	34	40	67	44	292	216	261	481	377	60	142	41
14	34	38	63	45	254	201	251	369	386	223	99	38
15	34	41	62	45	207	177	304	448	300	641	82	45
16	34	45	58	44	189	180	296	448	247	333	74	99
17	34	50	58	30	189	254	312	373	210	292	67	121
18	36	80	55	32	265	233	536	320	189	207	60	86
19	40	104	54	35	288	237	541	504	168	192	55	69
20	41	84	50	42	513	223	825	1450	157	168	50	60
21	41	67	31	50	578	204	1030	1130	142	147	48	54
22	38	60	37	65	452	198	756	805	130	130	45	48
23	37	55	45	65	559	207	592	592	119	110	44	44
24	36	62	52	62	794	210	518	462	108	99	42	41
25	50	112	54	60	578	342	434	365	104	90	40	40
26	114	114	35	62	443	412	365	292	112	86	38	38
27	84	99	45	70	347	434	312	448	106	80	37	37
28	63	95	50	99	288	430	272	3040	90	72	36	37
29	55	88	58	106	---	386	244	2890	84	76	36	35
30	52	80	63	109	---	377	240	1490	82	84	35	34
31	50	---	65	40	---	403	---	949	---	69	49	---
TOTAL	1387	1845	1776	1622	7866	9901	11626	19620	8762	4305	2024	1825
MEAN	44.7	61.5	57.3	52.3	281	319	388	633	292	139	65.3	60.8
MAX	114	114	72	108	794	789	1030	3040	692	641	142	137
MIN	34	38	31	25	45	177	240	114	82	60	35	34
CFSM	.20	.28	.26	.24	1.26	1.43	1.74	2.84	1.31	.62	.29	.27
IN.	.23	.31	.30	.27	1.31	1.65	1.96	3.27	1.46	.72	.34	.30

CAL YR 1980 TOTAL 110979 MEAN 303 MAX 1770 MIN 31 CFSM 1.36 IN 18.51
WTR YR 1981 TOTAL 72559 MEAN 199 MAX 3040 MIN 25 CFSM .89 IN 12.10

03176500 NEW RIVER AT GLEN LYN, VA
(National stream-quality accounting network station)

LOCATION.--Lat 37°22'22", long 80°51'39", Giles County, Hydrologic Unit 05050002, on right bank at upstream side of bridge on U.S. Highway 460 at Glen Lyn, 0.3 mi (0.5 km) upstream from East River, and 6.3 mi (10.1 km) downstream from Wolf Creek.

DRAINAGE AREA.--3,768 mi^2 (9,759 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1927 to current year.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1305: 1928(M), 1930(M).

GAGE.--Water-stage recorder. Datum of gage is 1,490.24 ft (454.225 m) National Geodetic Vertical Datum of 1929. Aug. 11, 1927, to Oct. 16, 1934, on left bank just upstream from highway bridge at same datum, and Oct. 17, 1934, to June 16, 1939, on left bank 200 ft (61 m) upstream from highway bridge at same datum.

REMARKS.--Records good. Flow regulated since 1939 by Claytor Reservoir (station 03169000) 55 mi (88 km) above station. Corps of Engineers satellite and gage-height telemeters at station.

AVERAGE DISCHARGE.--54 years, 4,997 ft^3/s (141.5 m^3/s), 18.01 in/yr (457 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 226,000 ft^3/s (6,400 m^3/s) Aug. 14, 1940, gage height, 27.50 ft (8.382 m), from rating curve extended above 89,000 ft^3/s (2,500 m^3/s) on basis of slope-area measurement of peak flow; minimum, 717 ft^3/s (20.3 m^3/s) Jan. 5, 1981, result of freezeup; minimum daily, 820 ft^3/s (23.2 m^3/s) Sept. 8, 1930; minimum gage height, 2.10 ft (0.640 m) Sept. 8, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31,600 ft^3/s (895 m^3/s) May 29, gage height, 9.59 ft (2.923 m); minimum, 717 ft^3/s (20.3 m^3/s) Jan. 5, gage height, 2.67 ft (0.814 m); minimum daily, 871 ft^3/s (24.7 m^3/s) Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2560	2000	1600	2030	1160	3010	7630	3820	10000	2410	1480	1290
2	2440	1140	2720	1370	1270	2270	7300	3400	9030	2340	992	1120
3	2940	1040	2870	3220	6670	3920	6300	2390	9180	2270	940	1330
4	3000	2100	2440	1350	5490	4370	5120	1320	7770	1540	1310	2300
5	1440	1930	2470	880	4390	5290	2160	2820	6870	1300	1370	3470
6	1300	1730	2890	2730	2860	5720	1900	2400	6930	1270	1610	3030
7	2410	1630	1280	1970	2740	5900	4890	2500	9480	4080	1380	2080
8	2510	2030	1150	1220	1380	2540	5860	2400	7290	4840	1610	3030
9	2760	1190	1920	1250	1360	2930	4290	2060	7510	2860	1230	2260
10	2390	1500	2430	1220	2990	5270	3700	1210	6380	2530	1180	1830
11	2760	1730	2070	1060	6290	4960	2860	2280	6920	2090	1510	1800
12	1330	1700	2030	1160	13800	5330	1750	5650	5790	1260	1780	1930
13	1190	1630	2390	1610	10500	3200	1590	6820	4940	1070	2060	1220
14	2530	2130	1250	1330	7030	2810	4220	5070	1980	2190	1830	1100
15	1760	2740	1120	1220	5590	1990	3090	4300	1860	1930	1560	1170
16	1650	1250	2040	1200	1940	1320	3700	3730	4610	2300	1140	1370
17	1620	1000	1830	1160	4200	3340	4220	1930	4000	2550	957	1660
18	1800	2630	1850	871	4180	2580	4360	2460	3740	3180	1030	2510
19	1490	2160	1990	1330	4440	2160	2480	6990	3750	1520	1080	3340
20	1250	2240	1890	1350	5610	2290	2970	7420	3430	1240	1150	1230
21	2530	1950	1180	1310	6200	2460	10400	13200	1300	2290	1040	1140
22	2320	1900	1150	1600	7450	1490	8040	13100	1190	1710	1060	2210
23	2570	1170	1790	2570	6210	1390	7130	9870	3450	1860	1080	1310
24	2360	1100	2160	2130	9000	4180	6240	6730	2830	1920	1000	1160
25	1860	2240	1860	1160	8510	5530	5300	5330	2150	2140	1140	1110
26	1430	2480	1170	1140	6230	4400	4010	4590	2460	1270	1190	1100
27	3070	3630	1770	1820	5630	3530	1880	5480	2300	1110	1140	1050
28	4180	2530	1340	1980	5090	5160	4330	13900	1210	2020	1070	1030
29	2600	2970	1160	1970	---	2400	3200	25700	1060	1950	1160	1100
30	2570	1880	1760	2090	---	2240	2780	17200	2420	1930	1080	1080
31	3000	---	1790	1930	---	7300	---	13700	---	1400	1110	---
TOTAL	69620	57350	57360	49231	148210	111280	133700	199770	141830	64370	39269	51360
MEAN	2246	1912	1850	1588	5293	3590	4457	6444	4728	2076	1267	1712
MAX	4180	3630	2890	3220	13800	7300	10400	25700	10000	4840	2060	3470
MIN	1190	1000	1120	871	1160	1320	1590	1210	1060	1070	940	1030
(*)	-25	+55	-24	+1	-29	-28	-35	+103	-90	+38	+11	-24
MEAN‡	2221	1967	1826	1589	5264	3562	4422	6547	4638	2114	1278	1688
CFSM‡	.59	.52	.48	.42	1.40	.95	1.17	1.74	1.23	.56	.34	.45
IN‡	.68	.58	.56	.49	1.46	1.09	1.31	2.00	1.37	.65	.39	.50

CAL YR 1980 TOTAL 1845150 MEAN 5041 MAX 42600 -MIN 1000 MEAN‡ 5044 CFSM‡ 1.34 IN‡ 18.23
WTR YR 1981 TOTAL 1123350 MEAN 3078 MAX 25700 MIN 871 MEAN‡ 3075 CFSM‡ .82 IN‡ 11.08

* Change in contents, equivalent in cubic feet per second, in Claytor Reservoir; furnished by Appalachian Power Co.
‡ Adjusted for change in contents.

03176500 NEW RIVER AT GLEN LYN, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1955-56, 1965 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 1968 to current year.
WATER TEMPERATURES: October 1964 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (water years 1968-71, 1973-81): Maximum, 350 micromhos Nov. 6, 1968; minimum, 70 micromhos Mar. 26, 27, 1979.
WATER TEMPERATURES (water years 1964-71, 1973-81): Maximum, 29.0°C July 10, 1973, July 14, 19, 21, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 222 micromhos Jan. 18; minimum daily, 90 micromhos May 20, 27.
WATER TEMPERATURES: Maximum daily, 27.5°C July 14; minimum, 1.0°C Jan. 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (NTU)	OXYGEN, DIS-SOLVED (MG/L)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)
NOV 04...	1030	3030	171	7.4	7.5	.40	6.7	29	K11	73	14
JAN 20...	1045	1630	199	7.0	2.5	.40	12.4	140	27	82	24
MAR 24...	1000	6100	146	7.7	5.0	1.1	13.2	33	K10	56	18
MAY 19...	1040	4290	133	7.1	13.5	2.4	11.2	53	78	54	14
JUL 28...	1045	3370	178	8.2	27.0	4.1	6.7	130	120	77	15
SEP 29...	0945	1030	207	8.5	17.5	1.1	8.0	81	17	90	24

K Result based on colony count outside optimal range.

DATE	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)
NOV 04...	17	7.4	3.9	1.7	59	13	4.2	.1	4.9	84	90
JAN 20...	19	8.4	6.4	1.6	58	21	5.4	.1	1.3	113	103
MAR 24...	14	5.2	3.6	1.5	38	14	4.0	<.1	3.2	101	75
MAY 19...	14	4.6	5.4	1.4	40	13	3.7	<.1	5.4	75	76
JUL 28...	17	8.4	3.7	1.5	62	17	3.7	<.1	6.8	119	98
SEP 29...	21	9.2	4.7	1.5	66	25	5.0	.1	4.6	126	116

< Actual value is known to be less than the value shown.

03176500 NEW RIVER AT GLEN LYN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N)	NITRO-GEN, TOTAL (MG/L AS N)	NITRO-GEN DIS-SOLVED (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)
NOV											
04...	.39	.42	.050	.040	.31	.07	.70	.49	.040	.040	1
JAN											
20...	1.1	1.1	<.010	.010	.19	.18	1.3	1.3	.060	<.010	--
MAR											
24...	1.5	1.5	.010	.010	.37	.10	1.9	1.6	.040	.030	<1
MAY											
19...	.96	.98	.020	.030	.46	.42	1.4	1.4	.060	.040	--
JUL											
28...	.64	.63	.020	.020	.29	.25	.93	.88	.070	.040	1
SEP											
29...	1.1	1.1	.070	.070	.50	.31	1.6	1.4	.060	.050	6

< Actual value is known to be less than the value shown.

DATE	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)	CADMIUM DIS-SOLVED (UG/L AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO)	COBALT, DIS-SOLVED (UG/L AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, DIS-SOLVED (UG/L AS CU)
NOV											
04...	1	100	30	1	1	10	10	<1	<1	1	<1
JAN											
20...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	<1	100	<50	<1	<1	10	10	<1	<1	3	2
MAY											
19...	--	--	--	--	--	--	--	--	--	--	--
JUL											
28...	1	100	40	1	1	10	<10	2	1	6	2
SEP											
29...	3	100	100	1	<1	20	10	6	3	6	1

< Actual value is known to be less than the value shown.

DATE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY DIS-SOLVED (UG/L AS HG)	NICKEL, TOTAL RECOV-ERABLE (UG/L AS NI)	NICKEL, DIS-SOLVED (UG/L AS NI)	SELE-NIUM, TOTAL (UG/L AS SE)
NOV											
04...	220	40	<1	<1	20	5	<.1	<.1	1	<1	<1
JAN											
20...	--	--	--	--	--	--	--	--	--	--	--
MAR											
24...	240	20	30	4	50	10	<.1	<.1	5	3	<1
MAY											
19...	--	--	--	--	--	--	--	--	--	--	--
JUL											
28...	620	50	6	5	50	<1	<.1	<.1	11	1	<1
SEP											
29...	70	<10	1	<1	10	10	.2	<.1	10	3	<1

< Actual value is known to be less than the value shown.

03176500 NEW RIVER AT GLEN LYN, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SELE-NIUM, DIS-SOLVED (UG/L AS SE)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	SILVER, DIS-SOLVED (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, DIS-SOLVED (UG/L AS ZN)	CARBON, ORGANIC TOTAL (MG/L AS C)	CARBON, ORGANIC DIS-SOLVED (MG/L AS C)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM
NOV											
04...	<1	<1	<1	20	1	--	--	.7	230	4	--
JAN											
20...	--	--	--	--	--	4.4	--	--	--	1	--
MAR											
24...	<1	<1	<1	30	10	--	3.4	.4	980	6	--
MAY											
19...	--	--	--	--	--	--	--	--	350	14	--
JUL											
28...	<1	<1	<1	20	20	--	14	.4	260	12	--
SEP											
29...	<1	<1	<1	20	10	--	--	--	140	3	100

< Actual value is known to be less than the value shown.

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	177	160	---	160	130	114	126	120	166	178	197
2	---	163	165	175	185	200	114	127	118	151	168	198
3	---	187	163	155	125	145	116	127	115	169	185	198
4	172	184	---	---	130	123	118	127	120	168	182	197
5	158	185	155	170	143	135	127	127	120	167	180	179
6	182	183	165	170	160	130	137	127	120	166	182	168
7	189	183	178	150	160	120	116	132	115	143	177	176
8	191	---	---	170	180	125	113	141	120	120	175	178
9	190	---	180	195	180	123	118	136	115	135	175	172
10	190	---	175	185	130	140	126	153	120	149	185	168
11	164	171	---	190	145	118	139	175	115	147	190	173
12	166	175	165	203	135	145	139	130	120	148	175	163
13	188	170	175	215	130	140	147	115	123	168	190	171
14	166	176	160	210	135	158	147	112	145	180	168	194
15	---	168	---	---	120	143	127	115	160	175	165	203
16	180	170	160	195	---	140	127	120	120	158	170	208
17	175	170	180	200	130	140	126	135	---	161	181	178
18	186	163	150	222	143	180	123	140	---	164	199	176
19	177	171	120	220	150	165	114	140	115	159	185	175
20	167	171	160	210	---	198	125	90	145	170	185	---
21	175	165	173	210	125	155	114	118	145	175	185	193
22	185	---	178	195	118	150	105	123	162	168	201	188
23	---	---	185	200	98	170	107	110	153	165	200	183
24	---	193	183	155	118	160	111	123	143	165	199	194
25	171	193	175	160	115	180	111	120	151	155	198	186
26	171	170	170	175	116	178	118	135	150	155	208	193
27	166	165	183	195	120	130	121	90	158	176	198	198
28	146	155	175	195	123	125	126	110	145	184	196	215
29	152	147	180	180	---	120	126	120	175	180	198	217
30	160	160	183	175	---	125	128	108	168	171	199	218
31	154	---	173	---	---	109	---	113	---	163	203	---
MEAN	174	173	169	188	138	145	123	125	135	162	186	188

WTR YR 1981 MEAN 156 MAX 222 MIN 90

03176500 NEW RIVER AT GLEN LYN, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	11.5	8.0	---	4.5	9.0	14.0	17.0	19.0	24.0	22.5	24.0
2	---	11.0	9.0	6.5	6.0	9.0	10.0	16.0	19.5	23.0	23.5	24.0
3	---	11.0	7.5	4.5	5.0	8.5	11.0	14.0	20.0	22.0	25.0	24.0
4	18.0	11.0	---	---	3.5	7.0	12.0	16.0	22.0	23.0	26.0	24.0
5	17.0	12.0	7.0	3.0	2.0	8.0	14.0	18.5	22.5	23.0	26.5	24.0
6	15.0	11.5	8.0	3.0	4.5	6.0	13.0	20.0	21.0	24.5	27.0	24.0
7	16.0	11.0	9.0	4.0	2.5	8.0	14.0	18.5	20.5	24.5	27.0	23.5
8	16.0	---	---	2.0	4.0	5.0	14.5	18.0	22.0	25.0	26.5	23.0
9	12.0	---	10.0	3.0	2.5	6.5	15.0	19.0	23.0	25.0	26.0	21.5
10	12.5	---	10.5	2.0	4.0	7.0	14.0	19.5	23.0	27.0	26.0	20.0
11	20.0	12.0	---	2.5	6.0	7.0	15.0	19.0	23.0	26.5	26.0	20.5
12	17.0	10.0	6.5	2.0	5.0	7.5	16.0	16.5	22.5	27.0	25.0	22.0
13	15.0	8.0	7.5	3.0	5.5	8.0	16.5	16.0	22.5	26.5	26.0	22.0
14	14.0	8.5	5.5	4.0	4.5	7.5	17.0	16.0	22.5	27.5	25.0	22.5
15	---	10.0	---	---	6.0	9.5	17.0	18.0	24.0	25.5	24.5	23.5
16	15.0	11.0	7.0	4.5	---	9.5	15.0	16.0	24.5	24.5	25.0	23.0
17	16.0	8.0	7.0	4.0	7.5	6.5	14.5	15.0	---	25.0	25.0	21.5
18	14.0	10.0	7.0	4.0	8.0	8.0	14.5	17.0	---	26.0	24.5	20.0
19	17.5	9.0	7.0	4.5	8.5	7.0	14.0	16.0	24.0	26.0	24.0	18.5
20	16.5	6.5	5.0	4.0	---	5.0	16.0	14.0	24.0	26.0	23.5	---
21	16.0	8.0	3.0	4.0	9.0	5.5	15.0	14.0	24.0	26.5	23.0	18.0
22	15.5	---	3.0	4.0	7.0	6.0	15.0	17.0	25.0	26.5	23.0	18.0
23	---	---	5.0	1.0	9.0	5.0	15.5	17.0	24.5	27.0	23.0	18.5
24	---	10.0	4.0	7.0	8.5	6.0	14.0	18.0	24.5	27.0	23.0	17.0
25	14.0	8.5	3.5	7.0	7.5	8.5	13.0	19.0	26.0	27.0	24.0	16.5
26	14.0	8.0	2.5	7.5	7.0	9.0	13.0	20.0	25.0	26.5	23.0	18.0
27	10.0	7.0	2.0	7.5	7.5	9.5	13.5	16.0	23.5	26.5	23.0	18.0
28	12.5	7.0	3.0	8.0	8.0	9.5	17.0	16.5	23.0	26.5	23.5	19.0
29	13.0	6.5	5.5	7.5	---	10.0	16.0	17.0	23.0	26.5	23.5	17.5
30	13.0	6.0	6.0	7.0	---	10.5	17.0	18.0	23.5	24.5	24.0	17.5
31	13.0	---	7.0	---	---	14.0	---	18.0	---	24.0	24.0	---
MEAN	15.0	9.5	6.0	4.5	6.0	8.0	14.5	17.0	23.0	25.5	24.5	21.0

WTR YR 1981 MEAN 15.0 MAX 27.5 MIN 1.0

03176500 NEW RIVER AT GLEN LYN, VA--Continued

QUALITATIVE AND ASSOCIATED QUANTITATIVE ANALYSES OF BIOLOGICAL DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

PHYTOPLANKTON

	NOV 4,80	MAR 24,81	MAY 19,81	JUL 28,81	SEP 29,81
DATE	NOV 4,80	MAR 24,81	MAY 19,81	JUL 28,81	SEP 29,81
TIME	1030	1000	1040	1045	0945
TOTAL CELLS/ML	230	980	350	260	140
DIVERSITY: DIVISION	0.8	0.3	1.2	0.9	0.0
.CLASS	0.8	0.3	1.2	0.9	0.0
..ORDER	1.4	1.2	1.9	0.9	0.0
...FAMILY	1.7	2.7	2.3	0.9	1.0
....GENUS	1.9	2.8	3.1	1.5	1.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...MICRACTINIACEAE										
....MICRACTINIUM	--	-	--	-	13	4	--	-	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	13	1	13	4	--	-	--	-
...SCENEDESMACEAE										
....SCENEDESMUS	52#	22	26	3	26	7	150#	60	--	-
....TETRASTRUM	--	-	--	-	--	-	52#	20	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	--	-	13	1	13	4	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	13	6	--	-	39	11	13	5	--	-
....MELOSIRA	120#	50	--	-	90#	26	--	-	--	-
....STEPHANODISCUS	--	-	280#	29	51	15	--	-	--	-
..PENNALES										
...ACHNANTHACEAE										
....ACHNANTHES	--	-	13	1	--	-	--	-	--	-
....COCCONEIS	--	-	--	-	--	-	--	-	68#	50
...CYMBELLACEAE										
....CYMBELLA	--	-	13	1	13	4	--	-	--	-
...DIATOMACEAE										
....DIATOMA	--	-	210#	21	--	-	--	-	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	52	5	--	-	--	-	--	-
....SYNEDRA	--	-	150#	16	--	-	--	-	--	-
...GOMPHONEMATACEAE										
....GOMPHONEMA	--	-	13	1	13	4	--	-	--	-
...NAVICULACEAE										
....NAVICULA	26	11	130	13	26	7	--	-	68#	50
...NITZSCHIACEAE										
....NITZSCHIA	26	11	64	7	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROOCOCCALES										
...CHROOCOCCACEAE										
....ANACYSTIS	--	-	--	-	51	15	39	15	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

03207800 LEVISA FORK AT BIG ROCK, VA

LOCATION.--Lat 37°21'13", long 82°11'45", Buchanan County, Hydrologic Unit 05070202, on left bank at Big Rock, 2,000 ft (610 m) downstream from Rocklick Creek, and 2,500 ft (762 m) downstream from bridge on State Highway 645.

DRAINAGE AREA.--297 mi² (769 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1967 to current year.

GAGE.--Water-stage recorder. Datum of gage is 866.37 ft (264.070 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Corps of Engineers satellite and gage-height telemeters at station.

AVERAGE DISCHARGE.--14 years, 396 ft³/s (11.21 m³/s), 18.11 in/yr (460 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 56,000 ft³/s (1,590 m³/s) Apr. 4, 1977, gage height, 27.38 ft (8.345 m), from rating curve extended above 7,000 ft³/s (200 m³/s) on basis of slope-area measurement of peak flow; minimum, 5.0 ft³/s (0.14 m³/s) Oct. 1, 13, 14, 17, 18, 19, 20, 1969, gage height, 3.65 ft (1.113 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 23.0 ft (7.0 m), information from local resident.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft³/s (130 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 20	1300	4950	140	9.24	2.816	June 7	0200	*6050	171	9.90	3.018

Minimum discharge, 17 ft³/s (0.48 m³/s) Jan. 5, gage height, 3.74 ft (1.140 m), result of freezeup; minimum daily, 20 ft³/s (0.57 m³/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	33	125	75	118	333	310	268	443	205	53	44
2	36	31	118	78	1030	289	297	237	620	257	50	41
3	44	31	114	66	777	264	272	209	504	134	61	47
4	58	34	95	59	422	289	257	189	487	163	59	56
5	47	41	90	20	306	890	534	179	1040	118	64	50
6	36	34	85	40	249	1320	691	169	1600	199	111	54
7	30	30	80	50	199	897	570	160	4120	476	106	137
8	29	29	75	70	209	595	459	148	1560	199	465	69
9	28	30	88	70	154	448	459	134	854	137	195	54
10	27	31	114	57	176	366	465	129	576	108	111	42
11	28	28	102	30	534	314	470	151	427	94	81	33
12	27	27	94	35	627	277	443	160	319	81	83	30
13	25	25	92	32	504	249	396	132	281	76	74	27
14	22	24	85	40	386	234	356	126	264	101	61	27
15	22	27	78	50	306	202	386	306	212	118	54	166
16	23	30	79	40	281	328	351	205	189	101	132	356
17	22	58	74	35	627	470	540	163	216	106	92	137
18	22	176	65	30	1060	454	1020	151	163	79	62	81
19	29	138	61	35	777	396	941	763	146	89	54	65
20	31	97	49	49	826	342	3310	2780	140	96	48	56
21	24	72	25	95	743	293	1970	1090	132	121	42	48
22	22	60	30	149	570	289	1040	620	126	89	40	40
23	21	60	35	179	717	351	743	416	113	71	37	36
24	21	620	71	176	919	470	704	310	101	61	34	33
25	116	522	69	152	665	684	589	249	108	57	32	31
26	121	252	55	148	481	652	493	219	199	56	30	30
27	64	207	50	166	366	558	416	226	121	48	28	28
28	52	195	59	178	319	448	351	470	94	89	28	28
29	47	178	63	155	---	376	314	665	85	157	26	25
30	41	151	84	136	---	366	301	528	89	85	26	24
31	36	---	81	70	---	319	---	422	---	64	40	---
TOTAL	1190	3271	2385	2565	14348	13763	19448	11974	15329	3835	2379	1895
MEAN	38.4	109	76.9	82.7	512	444	648	386	511	124	76.7	63.2
MAX	121	620	125	179	1060	1320	3310	2780	4120	476	465	356
MIN	21	24	25	20	118	202	257	126	85	48	26	24
CFSM	.13	.37	.26	.28	1.72	1.50	2.18	1.30	1.72	.42	.26	.21
IN.	.15	.41	.30	.32	1.80	1.72	2.44	1.50	1.92	.48	.30	.24

CAL YR 1980 TOTAL 105136 MEAN 287 MAX 2560 MIN 21 CFSM .97 IN 13.17
WTR YR 1981 TOTAL 92382 MEAN 253 MAX 4120 MIN 20 CFSM .85 IN 11.57

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1970 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1969 to June 1972, March 1974 to current year.
WATER TEMPERATURES: October 1969 to June 1972, August 1973 to current year.
SUSPENDED-SEDIMENT DISCHARGE: January 1970 to June 1972, August 1973 to current year.

INSTRUMENTATION.--Water-quality monitor since October 1975.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,180 micromhos Oct. 12, 1969; minimum, 120 micromhos Mar. 29, 30, 1975.
WATER TEMPERATURES: Maximum, 33.5°C June 28, 1978; minimum, 0.0°C on many days December to February during most years.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 27,800 mg/L Aug. 11, 1977; minimum daily mean, 1 mg/L Oct. 19, 1970.
SEDIMENT LOADS: Maximum daily, 502,000 tons (445,000 tonnes) Apr. 4, 1977; minimum daily, 0.04 tons (0.04 tonnes) Oct. 19, 1970.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 1,130 micromhos Aug. 30; minimum recorded, 183 micromhos May 20.
WATER TEMPERATURES: Maximum recorded, 32.5°C July 26.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 4,310 mg/L Apr. 20; minimum daily mean, 4 mg/L Jan. 14, 16.
SEDIMENT LOADS: Maximum daily, 38,600 tons (34,200 tonnes) Apr. 20; minimum daily, 0.41 tons (0.36 tonnes) Oct. 7.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT												
07...	1130	29	850	7.5	13.0	6.4	--	--	--	--	--	--
DEC												
03...	0845	116	525	7.4	4.0	10.0	--	--	--	--	--	--
JAN												
14...	0915	42	610	6.7	.0	--	--	--	--	--	--	--
FEB												
24...	1405	926	187	7.1	6.0	11.1	--	--	--	--	--	--
APR												
07...	1420	552	305	6.6	11.5	12.4	--	--	--	--	--	--
MAY												
20...	0845	3140	183	7.2	12.5	10.2	--	--	--	--	--	--
JUL												
08...	0845	216	485	8.1	23.0	8.8	--	--	--	--	--	--
AUG												
26...	0845	30	995	8.2	20.0	7.1	320	220	74	32	89	3.8

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)
OCT												
07...	98	230	--	--	--	525	--	--	--	--	--	--
DEC												
03...	71	150	--	--	--	333	--	--	--	--	--	--
JAN												
14...	70	200	--	--	--	380	--	--	--	--	--	--
FEB												
24...	100	73	--	--	--	160	--	--	--	--	--	--
APR												
07...	31	88	--	--	--	192	--	--	--	--	--	--
MAY												
20...	27	45	--	--	--	111	--	--	--	--	--	--
JUL												
08...	64	120	--	--	--	313	--	--	--	--	--	--
AUG												
26...	92	300	73	.2	.9	682	628	.06	.020	1	<1	200

< Actual value is known to be less than the value shown.

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)
OCT 07...	--	--	--	--	--	--	--	390	10	--	--	--
DEC 03...	--	--	--	--	--	--	--	3900	<10	--	--	--
JAN 14...	--	--	--	--	--	--	--	160	<10	--	--	--
FEB 24...	--	--	--	--	--	--	--	290	30	--	--	--
APR 07...	--	--	--	--	--	--	--	950	30	--	--	--
MAY 20...	--	--	--	--	--	--	--	33000	80	--	--	--
JUL 08...	--	--	--	--	--	--	--	2500	10	--	--	--
AUG 26...	1	<1	20	8	10	3	12	900	30	12000	17	10

< Actual value is known to be less than the value shown.

DATE	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)
OCT 07...	130	110	--	--	--	--	--	--	--	--	--	--
DEC 03...	310	220	--	--	--	--	--	--	--	--	--	--
JAN 14...	210	240	--	--	--	--	--	--	--	--	--	--
FEB 24...	20	20	--	--	--	--	--	--	--	--	--	--
APR 07...	120	80	--	--	--	--	--	--	--	--	--	--
MAY 20...	1200	20	--	--	--	--	--	--	--	--	--	--
JUL 08...	130	40	--	--	--	--	--	--	--	--	--	--
AUG 26...	90	50	400	.2	<.01	1	<1	<1	20	46	<.01	24.0

< Actual value is known to be less than the value shown.

BIG SANDY RIVER BASIN

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SEDI-MENT, SUS-PENDED (MG/L)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM	SED. SUSP. FALL DIAM. % FINER THAN .008 MM	SED. SUSP. FALL DIAM. % FINER THAN .016 MM	SED. SUSP. FALL DIAM. % FINER THAN .031 MM
APR							
20...	1615	4540	3360	16	25	34	45

DATE	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .125 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .250 MM	SED. SUSP. SIEVE DIAM. % FINER THAN .500 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 1.00 MM	SED. SUSP. SIEVE DIAM. % FINER THAN 2.00 MM
APR						
20...	55	68	85	95	98	100

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	17.0	15.5	16.5	9.0	8.0	8.5	4.5	3.5	4.0	---	---	---
2	16.5	15.0	16.5	8.5	8.0	8.0	4.5	4.0	4.0	---	---	---
3	16.5	15.5	16.0	9.0	7.5	8.0	---	---	---	---	---	---
4	16.0	14.0	15.0	10.0	8.5	9.5	---	---	---	---	---	---
5	15.0	13.5	14.0	10.0	8.5	9.0	---	---	---	---	---	---
6	15.0	13.0	13.5	11.0	8.0	8.5	---	---	---	---	---	---
7	14.0	12.0	13.0	10.0	7.5	8.0	---	---	---	---	---	---
8	14.0	11.5	13.0	8.5	8.0	8.5	---	---	---	---	---	---
9	14.0	12.5	13.0	11.5	8.5	9.5	---	---	---	---	---	---
10	14.5	12.5	13.5	9.0	8.5	9.0	---	---	---	---	---	---
11	13.5	11.5	12.0	12.0	8.0	9.0	---	---	---	---	---	---
12	11.5	10.5	10.5	8.0	7.5	8.0	---	---	---	---	---	---
13	10.0	9.0	9.5	8.0	7.0	7.5	---	---	---	---	---	---
14	9.5	8.5	9.0	7.5	7.0	7.5	---	---	---	---	---	---
15	9.5	8.0	9.0	7.5	7.0	7.5	---	---	---	1.0	.5	1.0
16	9.5	8.5	9.0	8.0	7.0	7.5	---	---	---	1.0	1.0	1.0
17	10.0	9.0	9.5	9.0	7.0	7.5	---	---	---	1.5	1.0	1.5
18	11.0	10.5	11.0	7.5	7.0	7.5	---	---	---	1.5	1.5	1.5
19	12.0	11.0	11.0	7.0	6.5	7.0	---	---	---	2.0	1.5	2.0
20	11.5	10.0	11.0	9.0	6.5	7.0	---	---	---	2.0	1.0	2.0
21	11.0	9.0	10.0	6.5	5.5	6.0	---	---	---	2.0	2.0	2.0
22	10.0	9.0	9.5	9.0	5.0	6.0	---	---	---	2.0	---	---
23	10.0	8.5	9.0	7.0	4.5	5.0	---	---	---	1.0	.5	1.0
24	9.5	8.5	9.0	5.5	4.5	5.0	---	---	---	1.5	1.0	1.5
25	9.0	8.0	8.5	6.0	5.5	5.5	---	---	---	2.0	1.5	2.0
26	10.0	7.5	8.0	5.5	5.0	5.0	---	---	---	2.5	2.0	2.0
27	10.0	7.5	9.0	5.0	5.0	5.0	---	---	---	3.0	2.0	3.0
28	8.0	7.5	8.0	5.0	5.0	5.0	---	---	---	3.0	3.0	3.0
29	8.0	8.0	8.0	5.0	4.0	4.5	---	---	---	3.0	3.0	3.0
30	8.0	7.5	8.0	4.5	3.5	4.0	---	---	---	3.5	3.0	3.0
31	9.0	8.0	8.5	---	---	---	---	---	---	3.5	3.5	3.5
MONTH	17.0	7.5	11.0	12.0	3.5	7.0	4.5	3.5	4.0	3.5	.5	2.0

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	3.5	3.5	3.5	6.5	6.5	6.5	---	---	---	17.0	16.0	16.5
2	4.0	3.5	4.0	6.5	6.0	6.5	---	---	---	17.5	17.0	17.0
3	4.0	4.0	4.0	6.5	6.0	6.0	---	---	---	18.0	17.0	18.0
4	4.0	4.0	4.0	6.5	6.5	6.5	---	---	---	18.5	16.5	18.0
5	4.5	4.0	4.5	6.5	6.0	6.0	---	---	---	19.5	17.0	19.0
6	4.5	4.0	4.0	---	---	---	---	---	---	20.0	18.5	19.5
7	4.5	4.5	4.5	---	---	---	---	---	---	20.5	19.0	20.0
8	5.0	4.5	5.0	---	---	---	---	---	---	20.5	19.5	20.5
9	5.0	5.0	5.0	---	---	---	---	---	---	21.5	20.5	21.0
10	5.5	5.0	5.5	---	---	---	---	---	---	21.5	21.0	21.5
11	5.5	5.5	5.5	---	---	---	---	---	---	22.0	20.5	21.5
12	6.0	5.5	5.5	---	---	---	---	---	---	20.0	19.0	19.5
13	6.0	5.0	6.0	---	---	---	---	---	---	20.5	19.0	20.0
14	6.0	6.0	6.0	---	---	---	---	---	---	21.5	20.5	21.0
15	6.0	6.0	6.0	---	---	---	---	---	---	21.0	16.5	18.0
16	5.5	---	---	---	---	---	---	---	---	17.5	16.0	16.5
17	4.5	---	---	---	---	---	---	---	---	17.0	16.0	16.5
18	3.5	---	---	---	---	---	---	---	---	18.5	17.0	17.5
19	4.0	3.5	4.0	8.5	6.0	6.5	---	---	---	---	---	---
20	4.5	4.0	4.5	9.0	7.5	8.0	---	---	---	---	---	---
21	5.0	4.5	5.0	11.0	8.5	9.0	---	---	---	---	---	---
22	5.5	5.5	5.5	10.0	9.0	9.5	9.0	5.5	7.0	---	---	---
23	5.5	5.5	5.5	9.5	8.5	8.5	11.5	9.5	10.5	---	---	---
24	6.5	5.5	6.0	8.5	6.0	7.5	12.0	10.5	11.0	12.5	10.5	11.5
25	6.5	6.0	6.5	5.5	2.5	4.0	11.0	11.0	11.0	14.5	12.5	13.5
26	6.5	6.5	6.5	2.5	2.0	2.0	12.0	11.0	11.0	16.0	14.5	15.0
27	6.5	6.5	6.5	3.5	2.0	3.0	13.0	12.0	12.5	22.5	16.0	18.5
28	6.5	6.5	6.5	4.5	3.0	4.0	14.5	13.0	14.0	18.5	16.5	17.5
29	---	---	---	5.5	4.5	5.0	15.5	14.5	15.0	17.0	15.5	16.0
30	---	---	---	6.5	5.5	6.0	16.5	15.0	16.0	19.5	16.0	18.0
31	---	---	---	8.0	6.5	7.5	---	---	---	20.5	18.0	19.5
MONTH	6.5	3.5	5.0	11.0	2.0	6.0	16.5	5.5	12.0	22.5	10.5	18.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	21.0	18.5	19.5	26.0	22.5	23.5	26.0	19.0	22.5	28.5	25.0	27.0
2	20.0	17.0	18.0	23.0	19.5	21.5	26.5	23.5	24.0	31.0	24.5	27.5
3	21.5	17.5	19.5	23.0	21.0	22.0	26.0	22.5	24.0	29.0	26.0	27.5
4	22.5	19.5	21.0	26.0	21.0	23.0	27.0	22.0	24.0	27.5	26.0	27.0
5	21.0	18.5	20.0	26.5	22.5	24.5	27.5	23.0	25.0	29.0	25.0	27.0
6	20.5	16.5	18.5	26.0	23.5	24.5	25.5	22.5	23.5	29.0	25.5	27.0
7	17.5	15.0	16.0	24.0	21.0	22.5	24.5	21.5	23.0	27.5	25.0	26.0
8	19.0	15.5	17.5	27.0	23.0	25.0	25.0	18.5	21.0	27.5	23.5	25.5
9	19.0	17.5	18.0	29.5	25.0	27.0	27.0	22.5	25.0	25.5	22.5	24.0
10	21.0	18.5	19.5	29.0	26.0	27.5	29.0	23.5	26.0	25.5	21.0	23.5
11	23.5	19.5	21.5	30.5	25.5	27.5	29.5	23.0	26.0	25.5	21.5	23.5
12	24.5	21.0	22.5	30.5	26.0	28.5	29.5	21.0	25.0	26.0	21.0	23.5
13	24.0	22.0	23.0	30.5	26.0	28.0	25.5	21.5	23.5	26.5	22.5	24.0
14	27.0	22.5	24.5	28.0	26.0	27.0	27.0	20.5	23.5	25.5	22.5	24.0
15	29.0	24.0	26.0	29.0	24.0	26.5	28.0	22.5	25.5	24.0	21.0	22.5
16	29.5	24.5	26.5	26.5	24.5	25.5	26.5	21.5	25.0	21.0	19.5	20.0
17	26.5	23.5	25.0	28.5	24.0	26.0	27.0	23.0	25.0	20.0	18.5	19.0
18	27.0	21.5	24.0	29.0	24.5	26.5	26.0	20.0	23.5	19.0	18.0	18.5
19	27.5	23.5	25.5	28.5	24.5	26.5	27.5	23.0	25.0	20.5	18.0	19.0
20	25.5	23.5	24.0	25.5	24.5	25.0	28.0	22.0	24.5	21.0	17.5	19.0
21	27.0	22.0	24.5	25.0	23.0	24.0	25.0	22.0	23.5	22.0	18.0	20.0
22	26.5	24.0	25.5	25.5	22.5	24.0	23.0	20.0	21.5	22.5	18.5	20.5
23	29.0	23.0	25.5	26.5	22.0	24.0	---	---	---	21.5	19.0	20.0
24	29.5	23.0	26.0	28.0	23.0	25.5	---	---	---	18.5	17.0	18.0
25	27.5	24.0	26.0	27.5	24.0	25.5	---	---	---	21.0	16.5	18.0
26	26.5	22.5	24.5	32.5	24.5	28.5	26.0	20.0	22.5	22.0	16.0	19.0
27	27.5	21.5	24.0	29.5	25.0	27.5	24.5	20.0	22.5	21.5	18.5	20.0
28	28.0	21.0	24.0	27.0	24.0	25.5	27.5	21.5	24.5	20.5	18.0	19.0
29	28.5	22.5	25.0	26.0	21.5	23.0	27.5	22.5	25.0	19.0	16.5	18.0
30	27.5	23.0	25.0	24.0	19.5	21.5	29.0	23.0	25.5	19.5	16.5	18.0
31	---	---	---	28.5	20.5	22.5	29.5	24.5	26.5	---	---	---
MONTH	29.5	15.0	22.5	32.5	19.5	25.0	29.5	18.5	24.0	31.0	16.0	22.0
YEAR	32.5	.5	15.5									

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	765	763	764	847	842	846	556	554	555	583	580	581
2	781	778	779	850	847	849	540	537	539	584	582	583
3	795	793	794	850	847	849	527	523	525	586	584	586
4	813	809	811	851	848	849	530	528	529	590	587	588
5	826	821	822	853	849	850	530	529	530	593	592	593
6	836	834	835	851	846	849	531	530	531	595	592	594
7	850	848	849	850	846	848	533	532	533	594	592	593
8	850	847	849	850	848	849	536	533	535	599	596	597
9	849	847	849	851	848	850	538	535	537	599	597	598
10	851	849	850	854	850	852	542	539	540	601	599	600
11	855	851	853	854	849	852	544	543	543	606	605	605
12	857	854	855	853	849	850	545	544	545	607	606	607
13	857	855	856	836	833	834	547	543	545	609	607	608
14	857	855	857	818	817	818	548	546	547	611	607	608
15	858	855	857	806	802	803	551	549	551	601	600	601
16	858	855	857	790	787	789	553	550	552	595	593	594
17	858	854	856	775	772	773	555	553	554	589	587	588
18	855	854	855	763	759	762	558	555	557	583	580	581
19	858	855	856	750	747	749	557	556	556	574	572	573
20	859	858	858	733	728	731	563	561	562	566	563	565
21	859	857	858	712	706	709	567	564	566	555	553	554
22	859	858	859	691	688	690	568	565	567	547	544	546
23	859	858	859	672	670	671	568	563	565	538	537	538
24	859	857	858	663	656	659	566	564	565	534	530	531
25	862	858	860	652	648	649	572	568	570	527	524	525
26	859	854	856	635	632	634	576	573	575	518	515	516
27	855	849	852	620	616	618	576	574	575	511	508	508
28	849	846	848	604	602	604	577	575	576	503	502	503
29	850	846	847	589	586	587	578	574	576	496	495	495
30	847	842	845	571	571	571	578	576	577	489	486	488
31	845	841	844	---	---	---	581	580	581	482	480	481
MONTH	862	763	843	854	571	761	581	523	554	611	480	565

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	473	465	470	253	251	252	389	361	377	---	---	---
2	466	458	462	252	251	252	391	368	380	---	---	---
3	459	456	458	252	251	252	390	376	381	---	---	---
4	449	442	446	252	251	252	398	384	391	---	---	---
5	436	432	434	251	250	251	398	349	385	---	---	---
6	425	424	425	---	---	---	346	302	315	---	---	---
7	419	415	417	---	---	---	305	300	302	---	---	---
8	411	408	408	---	---	---	---	---	---	---	---	---
9	403	400	402	---	---	---	---	---	---	---	---	---
10	392	389	391	---	---	---	---	---	---	---	---	---
11	388	380	384	---	---	---	---	---	---	---	---	---
12	380	379	380	---	---	---	---	---	---	---	---	---
13	372	371	371	---	---	---	---	---	---	---	---	---
14	363	361	362	---	---	---	---	---	---	---	---	---
15	355	353	354	---	---	---	---	---	---	---	---	---
16	345	341	343	---	---	---	---	---	---	---	---	---
17	336	332	333	---	---	---	---	---	---	---	---	---
18	327	323	325	335	314	319	---	---	---	---	---	---
19	316	313	314	340	313	320	---	---	---	---	---	---
20	304	302	303	348	331	338	---	---	---	203	183	192
21	294	293	293	373	343	352	---	---	---	250	218	236
22	283	280	282	362	350	355	---	---	---	301	260	282
23	272	270	271	357	347	351	---	---	---	346	308	330
24	260	259	260	351	322	340	---	---	---	392	358	376
25	260	258	259	322	282	299	---	---	---	438	408	422
26	259	257	258	284	278	280	---	---	---	477	452	463
27	257	256	257	292	284	290	---	---	---	496	490	494
28	256	252	254	309	293	300	---	---	---	477	332	410
29	---	---	---	323	311	316	---	---	---	333	270	295
30	---	---	---	340	325	334	---	---	---	301	276	285
31	---	---	---	358	342	349	---	---	---	325	302	313
MONTH	473	252	354	373	250	305	398	300	362	496	183	342

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	349	328	336	669	628	659	666	643	658	1030	918	999
2	335	321	332	613	551	564	694	659	678	895	817	844
3	339	328	332	593	564	577	731	688	708	1000	852	908
4	346	336	342	602	582	590	738	719	726	1000	694	925
5	340	262	290	589	583	586	728	701	715	1010	723	949
6	297	240	273	598	516	585	717	656	696	1020	644	954
7	239	219	227	477	455	465	688	656	674	983	962	976
8	296	239	268	516	472	495	678	518	564	1040	883	1010
9	336	297	319	562	520	543	565	544	555	1050	999	1030
10	374	340	359	593	563	578	614	581	597	1050	971	1020
11	413	378	397	632	594	613	674	629	648	1020	328	810
12	456	414	435	666	637	651	692	679	686	1070	967	1030
13	465	455	461	678	659	667	719	686	703	1020	944	983
14	468	458	464	700	680	689	760	728	741	1040	953	989
15	576	474	488	695	662	679	798	761	780	1010	821	955
16	550	506	521	685	664	676	819	781	800	979	819	922
17	525	499	511	710	665	684	823	799	813	988	926	971
18	540	519	526	712	686	699	839	821	830	975	913	963
19	557	543	552	712	693	698	868	845	855	958	937	949
20	572	558	567	710	688	699	918	877	897	950	919	938
21	599	571	586	696	666	681	942	918	932	933	855	911
22	595	584	589	689	656	667	978	948	955	930	915	924
23	610	587	595	677	660	667	---	---	---	934	902	921
24	639	613	628	682	661	671	---	---	---	926	906	915
25	655	585	638	706	674	690	---	---	---	919	903	908
26	609	585	601	743	706	723	1030	1000	1010	906	891	899
27	617	608	612	735	720	728	1030	991	1010	899	889	893
28	634	606	621	740	662	718	1050	989	1020	902	887	892
29	658	637	649	659	623	635	1050	1010	1030	905	885	893
30	682	664	672	629	612	622	1130	1020	1040	898	877	888
31	---	---	---	642	616	632	1070	993	1020	---	---	---
MONTH	682	219	473	743	455	640	1130	518	798	1070	328	939
YEAR	1130	183	619									

03207800 LEVISA FORK AT BIG ROCK, VA--Continued

SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	27	2.8	20	1.8	20	6.8	20	4.1	102	32	70	63
2	25	2.4	25	2.1	87	28	15	3.2	2680	7450	36	28
3	28	3.3	30	2.5	146	45	30	5.3	157	329	39	28
4	45	7.0	40	3.7	52	13	41	6.5	72	82	76	59
5	30	3.8	70	7.7	66	17	78	4.2	86	71	939	2260
6	20	1.9	40	3.7	42	9.6	25	2.7	50	34	1100	3920
7	5	.41	32	2.6	23	5.0	27	3.9	34	18	325	787
8	10	.78	100	7.8	25	5.1	25	4.7	50	28	93	149
9	10	.76	42	3.4	1720	404	17	3.2	21	8.7	40	48
10	10	.73	38	3.2	320	98	7	1.1	44	21	31	31
11	15	1.1	18	1.4	87	24	9	.73	396	571	28	24
12	20	1.5	8	.58	48	12	10	.95	160	271	22	16
13	20	1.4	11	.74	106	27	5	.43	170	231	21	14
14	15	.89	12	.78	47	11	4	.43	82	85	16	10
15	25	1.5	18	1.3	19	4.0	5	.68	55	45	10	5.5
16	25	1.6	22	1.8	16	3.4	4	.43	48	36	342	303
17	25	1.5	312	47	13	2.6	12	1.1	788	1330	151	192
18	15	.89	243	115	11	1.9	6	.49	672	1920	53	65
19	35	2.7	80	30	10	1.6	9	.85	290	608	27	29
20	40	3.3	52	14	10	1.3	19	2.5	470	1050	21	19
21	25	1.6	26	5.1	12	.81	54	14	375	752	26	21
22	20	1.2	19	3.1	20	1.6	116	47	300	462	56	44
23	35	2.0	24	3.9	58	5.5	102	49	848	1640	146	138
24	40	2.3	1140	1910	146	28	51	24	450	1120	115	146
25	290	91	310	437	148	28	21	8.6	180	323	200	369
26	300	98	69	47	25	3.7	16	6.4	80	104	82	144
27	160	28	69	39	32	4.3	52	23	50	49	68	102
28	120	17	77	41	26	4.1	49	24	40	34	28	34
29	57	7.2	31	15	35	6.0	43	16	---	---	22	22
30	35	3.9	26	11	33	7.5	42	15	---	---	43	42
31	25	2.6	---	---	27	5.9	30	5.7	---	---	30	26
TOTAL	---	294.66	---	2763.20	---	820.71	---	282.19	---	18704.7	---	9138.5

DAY	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)	MEAN CONCEN-TRATION (MG/L)	LOADS (T/DAY)
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	308	258	34	25	269	322	477	264	32	4.6	130	15
2	100	80	43	26	470	787	621	431	39	5.3	275	30
3	53	39	22	12	144	196	122	44	34	5.6	141	18
4	27	19	17	6.7	622	819	278	122	39	6.2	192	29
5	450	649	11	5.3	1930	5380	80	25	30	5.2	106	14
6	114	213	11	5.0	2490	20400	349	388	605	181	110	16
7	50	77	6	2.6	3290	36600	871	1290	210	60	238	88
8	26	32	11	4.4	540	2270	115	62	2260	3390	145	27
9	199	247	12	4.3	220	507	70	26	282	148	133	19
10	153	192	9	3.1	88	137	47	14	70	21	110	12
11	160	203	31	13	39	45	32	8.1	61	13	87	7.8
12	90	108	13	5.6	32	25	33	7.2	62	14	59	4.8
13	61	65	9	3.2	28	21	52	11	47	9.4	48	3.5
14	163	157	34	12	32	25	176	48	21	3.5	45	3.3
15	402	419	2050	1690	19	11	218	69	68	9.9	684	307
16	66	63	70	39	32	16	211	58	345	123	908	873
17	444	647	30	13	164	96	99	28	162	40	145	54
18	1180	3250	120	49	39	17	58	12	72	12	77	17
19	366	935	2140	8430	22	8.7	672	161	46	6.7	49	8.6
20	4310	38600	1800	15600	263	101	1720	446	38	4.9	45	6.8
21	940	5000	200	589	58	21	2560	836	36	4.1	43	5.6
22	556	1560	82	137	12	4.1	490	118	21	2.3	33	3.6
23	326	654	51	57	8	2.4	52	10	20	2.0	23	2.2
24	274	521	28	23	5	1.4	36	5.9	18	1.7	17	1.5
25	67	107	12	8.1	107	31	27	4.2	29	2.5	16	1.3
26	52	69	16	9.5	309	166	88	13	30	2.4	13	1.1
27	41	46	60	37	53	17	23	3.0	22	1.7	10	.76
28	29	27	366	464	22	5.6	712	171	19	1.4	10	.76
29	27	23	292	524	18	4.1	878	372	20	1.4	9	.61
30	66	54	164	234	76	18	130	30	38	2.7	12	.78
31	---	---	80	91	---	---	67	12	36	3.9	---	---
TOTAL	---	54314	---	28126.8	---	68054.3	---	5089.4	---	4089.4	---	1572.01

TOTAL LOAD FOR YEAR: 193252.07 TONS.

03208000 LEVISA FORK BELOW FISHTRAP DAM, NEAR MILLARD, KY

LOCATION.--Lat 37°25'33", long 82°24'45", Pike County, Hydrologic Unit 05070202, on right bank 0.4 mi (0.6 km) downstream from Fishtrap Dam, 1.1 mi (1.8 km) upstream from Lower Pompey Branch, 1.9 mi (3.1 km) northeast of Millard, 2.4 mi (3.9 km) upstream from confluence with Russell Fork, and at mile 129.6 (208.5 km), revised.

DRAINAGE AREA.--392 mi^2 (1,015 km^2).

PERIOD OF RECORD.--February 1938 to current year. Prior to April 1968, published as Levisa Fork at Fishtrap.

REVISED RECORDS.--WSP 953: Drainage area. WSP 1335: 1938(M), 1939, 1940(M), 1942-43, 1944-45(M), 1946, 1948.

GAGE.--Water-stage recorder. Datum of gage is 600.00 ft (182.880 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Apr. 19, 1968, nonrecording gage at site 3.7 mi (6.0 km) upstream at different datum. Apr. 19, 1968, to June 18, 1973, water-stage recorder at site 1.0 mi (1.6 km) downstream at datum 59.96 ft (18.276 m) higher.

REMARKS.--Records good. Flow regulated by Fishtrap Lake beginning October 1968. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--43 years, 481 ft^3/s (13.62 m^3/s), 16.66 in/yr (423 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,000 ft^3/s (935 m^3/s) Jan. 29, 1957, gage height, 33.9 ft (10.33 m), from floodmark, site and datum then in use, from rating curve extended above 15,000 ft^3/s (420 m^3/s) on basis of slope-area measurement of peak flow; maximum gage height, 107.55 ft (32.781 m) Apr. 5, 1977, from floodmark, backwater from Russell Fork; no flow Apr. 5, 1977, all gates on Fishtrap Dam closed; minimum observed discharge prior to Fishtrap Lake, 0.1 ft^3/s (0.003 m^3/s) Nov. 8, 9, 1939, site then in use.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,750 ft^3/s (135 m^3/s) June 6, gage height, 79.84 ft (24.335 m); minimum daily, 50 ft^3/s (1.42 m^3/s) Jan. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	661	208	326	147	115	519	458	328	503	91	81	75
2	357	206	177	119	122	479	211	335	987	410	81	76
3	66	207	144	82	732	404	65	336	1650	365	82	75
4	60	202	179	81	1180	402	76	334	616	247	84	84
5	57	196	143	80	1150	1040	79	331	1260	177	84	92
6	58	196	143	78	724	1960	81	329	2290	144	88	90
7	58	194	143	77	265	1620	82	224	3310	146	91	90
8	57	193	128	76	357	970	82	167	4280	152	492	327
9	57	186	116	76	357	713	84	168	3410	462	509	469
10	58	186	114	74	338	595	83	185	1520	436	209	371
11	64	181	112	74	262	519	86	118	880	353	212	316
12	66	168	166	73	707	368	88	83	255	131	216	284
13	66	158	141	72	869	278	88	79	804	133	128	237
14	66	167	129	70	809	430	94	77	459	166	66	204
15	66	249	113	74	502	299	104	80	265	168	67	345
16	64	284	105	72	265	299	83	80	286	171	73	435
17	66	288	107	69	712	698	73	115	335	171	71	416
18	64	401	105	69	1540	793	79	131	331	204	74	433
19	66	494	93	60	1480	611	76	781	212	204	137	435
20	69	385	74	51	1200	537	1770	3620	143	204	63	436
21	67	236	73	50	1340	464	3280	2120	141	199	65	316
22	65	246	70	127	964	434	3280	1310	215	188	65	150
23	65	242	64	207	877	488	1490	423	254	140	67	191
24	98	250	68	274	1260	885	831	363	163	97	77	446
25	442	767	73	240	1170	1140	825	553	90	96	76	464
26	465	975	73	217	761	1070	823	454	167	96	60	444
27	334	485	73	223	528	838	747	330	325	95	70	436
28	326	391	73	218	519	384	490	379	185	95	81	276
29	317	339	75	118	---	80	327	1020	86	96	80	218
30	276	357	78	117	---	490	332	770	89	154	79	218
31	210	---	202	116	---	754	---	736	---	142	77	---
TOTAL	4811	9037	3680	3481	21105	20561	16267	16359	25511	5933	3705	8449
MEAN	155	301	119	112	754	663	542	528	850	191	120	282
MAX	661	975	326	274	1540	1960	3280	3620	4280	462	509	469
MIN	57	158	64	50	115	80	65	77	86	91	60	75
(*)	-96	-178	-7	+12	-9	+26	+433	-2	+4	-3	-4	-149
MEAN‡	59	123	112	124	745	689	975	526	854	188	116	133
CFSM‡	.15	.31	.28	.32	1.90	1.76	2.49	1.34	2.18	.48	.29	.34
IN‡	.17	.35	.33	.37	1.98	2.03	2.78	1.55	2.43	.55	.34	.38

CAL YR 1980 TOTAL 167047 MEAN 456 MAX 3970 MIN 49 MEAN‡ 456 CFSM‡ 1.16 IN‡ 15.85
WTR YR 1981 TOTAL 138899 MEAN 381 MAX 4280 MIN 50 MEAN‡ 383 CFSM‡ .98 IN‡ 13.25

* Change in contents, equivalent in cubic feet per second, in Fishtrap Lake.
‡ Adjusted for change in contents.

03208500 RUSSELL FORK AT HAYSI, VA

LOCATION.--Lat 37°12'25", long 82°17'45", Dickenson County, Hydrologic Unit 05070202, on right bank 180 ft (55 m) downstream from highway bridge at Haysi and 700 ft (213 m) downstream from McClure River.

DRAINAGE AREA.--286 mi² (741 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305.

REVISED RECORDS.--WSP 1003: 1926-43. WSP 1385: 1928(M), 1929, 1933(M), 1935(M), 1937-38(M).

GAGE.--Water-stage recorder. Datum of gage is 1,237.61 ft (377.224 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 21, 1939, nonrecording gage at highway bridge 180 ft (55 m) upstream at same datum.

REMARKS.--Records good. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--55 years, 333 ft^3/s (9.431 m^3/s), 15.81 in/yr (402 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,000 ft^3/s (1,670 m^3/s) Apr. 4, 1977, gage height, 28.24 ft (8.608 m), from rating curve extended above 32,000 ft^3/s (910 m^3/s) on basis of slope-area measurement of peak flow; minimum observed, 0.2 ft^3/s (0.006 m^3/s) June 27, 28, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 4,500 ft^3/s (130 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 20	1330	5320	151	7.28	2.219	May 20	0200	*5640	160	7.50	2.286

Minimum daily discharge, 11 ft^3/s (0.31 m^3/s) Jan. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	20	68	41	50	204	312	211	212	103	26	18
2	24	18	59	39	763	173	280	185	298	190	24	26
3	26	18	53	35	472	150	239	160	231	98	28	22
4	29	21	42	25	258	155	220	145	272	92	27	33
5	28	24	39	21	230	447	441	134	368	73	23	25
6	25	25	37	17	182	830	628	128	575	82	70	34
7	23	22	35	23	143	631	490	124	2130	90	150	90
8	21	20	33	30	122	410	390	114	1090	71	1000	40
9	20	20	39	29	105	303	355	102	599	56	120	30
10	19	22	52	25	124	247	321	98	405	49	70	26
11	22	19	48	11	1150	213	298	109	289	44	52	21
12	17	16	40	13	562	183	285	109	212	39	50	18
13	17	16	38	12	398	165	264	92	254	37	45	15
14	16	15	38	16	287	159	255	86	313	35	37	14
15	14	17	36	21	213	134	345	303	208	36	33	318
16	14	20	36	20	188	210	316	200	156	56	85	582
17	13	33	34	15	497	312	430	144	143	74	60	179
18	12	111	30	12	830	294	943	125	113	45	40	88
19	16	93	25	13	581	255	964	1040	98	40	34	58
20	22	54	19	15	574	217	3350	3080	92	48	29	46
21	19	40	12	65	523	187	1860	956	86	59	25	39
22	17	33	13	96	398	177	904	560	84	46	23	34
23	15	33	14	93	537	224	633	377	74	36	22	29
24	13	280	25	82	727	350	609	272	64	31	21	26
25	60	275	28	77	486	724	515	208	58	29	20	23
26	112	134	25	68	343	635	433	172	69	31	18	23
27	49	113	23	76	255	507	360	182	58	27	17	22
28	29	142	25	74	214	385	299	334	49	38	16	19
29	25	116	27	66	---	307	267	433	44	53	15	18
30	23	89	41	60	---	326	239	305	43	44	16	17
31	22	---	44	30	---	345	---	238	---	31	19	---
TOTAL	787	1859	1078	1220	11212	9859	17245	10726	8687	1783	2215	1933
MEAN	25.4	62.0	34.8	39.4	400	318	575	346	290	57.5	71.5	64.4
MAX	112	280	68	96	1150	830	3350	3080	2130	190	1000	582
MIN	12	15	12	11	50	134	220	86	43	27	15	14
CFSM	.09	.22	.12	.14	1.40	1.11	2.01	1.21	1.01	.20	.25	.23
IN.	.10	.24	.14	.16	1.46	1.28	2.24	1.40	1.13	.23	.29	.25

CAL YR 1980 TOTAL 90619 MEAN 248 MAX 2810 MIN 12 CFSM .87 IN 11.79
WTR YR 1981 TOTAL 68604 MEAN 188 MAX 3350 MIN 11 CFSM .66 IN 8.92

03208500 RUSSELL FORK AT HAYSI, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1978 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT												
07...	1420	22	700	8.1	14.5	12.4	--	--	--	--	--	--
DEC												
02...	1445	58	360	7.3	6.0	12.0	--	--	--	--	--	--
JAN												
12...	1315	13	505	7.4	.0	14.0	--	--	--	--	--	--
FEB												
25...	0900	507	173	6.9	4.0	10.9	--	--	--	--	--	--
APR												
08...	1430	385	195	6.9	12.5	10.9	--	--	--	--	--	--
MAY												
21...	1400	880	158	5.8	13.5	10.4	--	--	--	--	--	--
JUL												
07...	1050	90	480	7.8	24.0	8.2	--	--	--	--	--	--
AUG												
24...	1500	22	540	8.3	26.0	8.1	150	8	33	16	60	2.7

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
OCT												
07...	148	130	--	--	--	379	--	--	--	--	--	--
DEC												
02...	98	84	--	--	--	221	--	--	--	--	--	--
JAN												
12...	124	120	--	--	--	314	--	--	--	--	--	--
FEB												
25...	26	43	--	--	--	101	--	--	--	--	--	--
APR												
08...	33	44	--	--	--	119	--	--	--	--	--	--
MAY												
21...	--	40	--	--	--	108	--	--	--	--	--	--
JUL												
07...	146	100	--	--	--	293	--	--	--	--	--	--
AUG												
24...	140	110	9.7	.2	3.9	345	.02	.020	1	<1	100	2

< Actual value is known to be less than the value shown.

03208500 RUSSELL FORK AT HAYSI, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
OCT												
07...	--	--	--	--	--	--	350	10	--	--	--	40
DEC												
02...	--	--	--	--	--	--	460	10	--	--	--	80
JAN												
12...	--	--	--	--	--	--	350	20	--	--	--	80
FEB												
25...	--	--	--	--	--	--	2100	30	--	--	--	140
APR												
08...	--	--	--	--	--	--	470	90	--	--	--	50
MAY												
21...	--	--	--	--	--	--	1900	50	--	--	--	100
JUL												
07...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
24...	1	10	7	10	3	7	310	40	12000	10	30	20

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATE-RIAL (GM/KG)	SEDI-MENT, SUS-PENDED (MG/L)
OCT												
07...	20	--	--	--	--	--	--	--	--	--	--	--
DEC												
02...	90	--	--	--	--	--	--	--	--	--	--	--
JAN												
12...	90	--	--	--	--	--	--	--	--	--	--	--
FEB												
25...	80	--	--	--	--	--	--	--	--	--	--	--
APR												
08...	40	--	--	--	--	--	--	--	--	--	--	--
MAY												
21...	20	--	--	--	--	--	--	--	--	--	--	53
JUL												
07...	--	--	--	--	--	--	--	--	--	--	--	--
AUG												
24...	10	500	.1	<.01	<1	<1	<1	10	39	<.01	6.00	5

< Actual value is known to be less than the value shown.

03208680 NORTH FORK POUND RIVER LAKE AT POUND, VA

LOCATION.--Lat 37°07'27", long 82°37'52", Wise County, Hydrologic Unit 05070202, in control tower of North Fork Pound Dam at Pound, 1,200 ft (366 m) upstream from Stacy Branch, and 1.2 mi (1.9 km) upstream from South Fork Pound River.

DRAINAGE AREA.--17.2 mi² (44.5 km²).

PERIOD OF RECORD.--July 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Aug. 29, 1966, nonrecording gage at same site and datum.

REMARKS.--Lake is formed by rockfill dam. Spillway with crest at elevation 1,644.0 ft (501.09 m) is in a saddle 350 ft (107 m) southeast of dam. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,556.5 ft (474.42 m). Storage began in September 1964 during construction with peak discharge affected thereafter; initial filling for regular operation started July 13, 1966. Total capacity at elevation 1,644.0 ft (501.09 m), top of spillway, is 11,290 acre-ft (13.9 hm³) of which 8,110 acre-ft (10.0 hm³) is flood-control storage for summer operations between elevations 1,611.0 ft (491.03 m) top of summer conservation pool, and 1,644.0 ft (501.09 m); an additional 1,290 acre-ft (1.59 hm³) is available for flood control during the period December to March between elevations 1,601.0 ft (487.98 m), top of winter conservation pool, and 1,611.0 ft (491.03 m); contents at established minimum pool, 1,601.0 ft (487.98 m), is 1,900 acre-ft (2.34 hm³); dead storage is 7 acre-ft (8,630 m³) below elevation 1,556.5 ft (474.42 m). Figures given herein represent total contents. Lake is used for flood control, low-water augmentation for water-quality control, and recreation. Corps of Engineers satellite telemeter at station.

COOPERATION.--Capacity tables furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 6,920 acre-ft (8.53 hm³) Apr. 8, 1977, elevation, 1,629.41 ft (496.644 m); minimum (after initial filling for regular operation), 1,660 acre-ft (2.05 hm³) Jan. 23, 1969, elevation, 1,598.62 ft (487.259 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 3,730 acre-ft (4.60 hm³) June 8, elevation, 1,614.33 ft (492.048 m); minimum, 1,910 acre-ft (2.36 hm³) Feb. 16, elevation, 1,601.12 ft (488.021 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1610.74	3140	
Oct. 31	1606.31	2520	-620
Nov. 30	1602.47	2060	-460
Dec. 31	1602.24	2030	-30
CAL YR 1980			-100
Jan. 31	1602.49	2060	+30
Feb. 28	1602.39	2050	-10
Mar. 31	1603.19	2140	+90
Apr. 30	1611.28	3230	+1090
May 31	1612.30	3390	+160
June 30	1611.88	3320	-70
July 31	1611.24	3220	-100
Aug. 31	1611.61	3280	+60
Sept. 30	1611.71	3300	+20
WTR YR 1981			+160

03208700 NORTH FORK POUND RIVER AT POUND, VA.

LOCATION.--Lat 37°07'32", long 82°37'36", Wise County, Hydrologic Unit 05070202, on right bank at Pound, 700 ft (213 m) downstream from Stacy Branch, 1,600 ft (488 m) downstream from North Fork Pound River Dam, and 0.9 mi (1.4 km) upstream from confluence with South Fork.

DRAINAGE AREA.--18.5 mi² (47.9 km²).

PERIOD OF RECORD.--October 1961 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,500.00 ft (457.200 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Oct. 1, 1965, on left bank at datum 44.88 ft (13.679 m) higher.

REMARKS.--Records fair. Flow regulated since August 1966 by North Fork Pound River Lake (station 03208680). Corps of Engineers satellite telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--20 years, 29.4 ft³/s (0.833 m³/s), 21.58 in/yr (548 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,480 ft³/s (127 m³/s) Mar. 12, 1963, gage height, 61.58 ft (18.770 m), present datum, from rating curve extended above 650 ft³/s (18 m³/s) on basis of slope-area measurement of peak flow; minimum, 0.02 ft³/s (<0.001 m³/s) Sept. 16, 1964, Aug. 11, 12, Oct. 28, Nov. 10, 1969; minimum daily, 0.04 ft³/s (0.001 m³/s) Sept. 15, 1964, Aug. 11, 1969; minimum gage height, 47.66 ft (14.527 m) Sept. 16, 1964, present datum. Maximum discharge since construction of North Fork Pound River Dam in 1966, 1,010 ft³/s (28.6 m³/s) May 18, 1975, gage height, 55.04 ft (16.776 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 63.9 ft (19.5 m), present datum, from Corps of Engineers floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 321 ft³/s (9.09 m³/s) Apr. 20, gage height, 51.33 ft (15.645 m); minimum, 0.9 ft³/s (0.025 m³/s) Sept. 11, gage height, 48.07 ft (14.652 m); minimum daily, 2.7 ft³/s (0.076 m³/s) Dec. 13-16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	11	16	3.3	3.5	8.2	5.1	18	18	4.3	4.0	4.8
2	12	11	16	3.3	36	21	4.2	7.4	34	4.3	3.8	4.8
3	12	11	16	3.3	93	29	4.2	6.7	37	3.8	3.8	4.8
4	12	11	12	3.3	75	22	4.1	6.7	28	3.5	3.8	4.8
5	12	11	6.3	3.3	50	72	8.0	7.1	17	3.5	3.8	4.8
6	12	11	5.4	3.8	49	126	8.3	7.1	20	3.5	5.1	..8
7	12	11	5.4	4.3	48	78	6.3	6.1	46	3.5	5.6	4.8
8	10	11	3.1	4.5	48	40	5.2	5.9	98	3.5	7.6	5.1
9	8.4	11	2.9	4.5	32	39	5.2	5.8	95	3.5	4.8	5.1
10	8.4	11	3.1	4.8	24	38	5.2	5.8	93	3.5	4.5	4.8
11	8.7	11	3.1	4.8	188	28	4.8	5.8	69	3.5	4.3	4.0
12	9.1	11	3.1	4.8	197	14	4.7	5.8	24	3.5	4.3	4.5
13	9.1	11	2.7	4.8	138	13	4.4	5.0	19	3.5	4.3	4.5
14	9.1	11	2.7	4.8	61	13	4.2	3.7	19	4.0	4.3	4.3
15	9.1	11	2.7	4.8	61	13	4.0	4.0	30	4.0	4.3	5.9
16	9.1	11	2.7	4.8	37	19	3.9	3.8	23	4.3	4.5	5.1
17	9.5	11	3.3	4.8	25	33	5.5	3.6	14	4.0	4.5	4.3
18	9.5	18	4.0	4.8	84	43	10	3.7	8.4	4.0	4.5	3.8
19	9.5	21	4.0	4.8	107	35	9.3	9.7	5.9	4.0	4.5	3.8
20	11	12	3.8	4.8	67	24	185	64	5.9	4.3	4.5	3.8
21	16	8.4	3.1	5.1	28	19	223	93	5.9	4.3	4.5	3.8
22	18	8.4	3.1	5.1	27	20	180	48	4.3	4.3	4.5	3.8
23	18	8.0	2.9	4.8	96	20	93	25	3.5	4.0	4.5	4.0
24	18	12	3.1	4.0	114	26	48	24	3.5	4.0	4.5	4.0
25	18	17	3.1	4.0	75	35	25	18	4.0	4.0	4.5	4.0
26	17	17	2.9	4.0	31	47	24	9.2	4.0	4.0	4.5	4.0
27	14	16	2.9	5.6	20	62	24	9.2	3.8	4.0	4.5	4.0
28	11	16	2.9	5.4	8.1	61	23	9.5	3.8	4.0	4.5	4.3
29	12	16	2.9	3.1	---	58	23	10	3.8	4.3	4.5	4.5
30	14	16	3.1	3.1	---	8.8	23	9.7	3.8	4.0	4.5	12
31	12	---	3.3	3.1	---	5.6	---	9.6	---	4.0	4.5	---
TOTAL	370.0	372.8	151.6	133.7	1822.6	1070.6	977.6	450.9	744.6	120.9	140.3	141.0
MEAN	11.9	12.4	4.89	4.31	65.1	34.5	32.6	14.5	24.8	3.90	4.53	4.70
MAX	18	21	16	5.6	197	126	223	93	98	4.3	7.6	12
MIN	8.4	8.0	2.7	3.1	3.5	5.6	3.9	3.6	3.5	3.5	3.8	3.8
(*)	-10	-8	.00	.00	.00	+1	+18	+3	-1	-2	+1	.00
MEAN‡	1.94	4.43	4.89	4.31	65.1	35.5	50.6	17.5	23.8	1.90	5.53	4.70
CFSM‡	.10	.24	.26	.23	3.52	1.92	2.74	.95	1.29	.10	.30	.25
IN‡	.12	.27	.30	.27	3.66	2.22	3.05	1.09	1.44	.12	.34	.28

CAL YR 1980 TOTAL 7436.8 MEAN 20.3 MAX 212 MIN 2.7 MEAN‡ 20.3 CFSM‡ 1.10 IN‡ 14.95
WTR YR 1981 TOTAL 6496.6 MEAN 17.8 MAX 223 MIN 2.7 MEAN‡ 17.8 CFSM‡ .96 IN‡ 13.06

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake; furnished by Corps of Engineers.

‡ Adjusted for change in contents.

03208900 POUND RIVER NEAR GEORGES FORK, VA

LOCATION.--Lat 37°09'51", long 82°31'30", Dickenson County, Hydrologic Unit 05070202, on right bank 50 ft (15 m) upstream from bridge on State Highway 624, 150 ft (46 m) upstream from Camp Creek, and 2.6 mi (4.2 km) northwest of the community of Georges Fork.

DRAINAGE AREA.--82.5 mi^2 (213.7 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,470.39 ft (448.175 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Some regulation since August 1966 by North Fork Pound River Lake (station 03208680) 13 mi (21 km) upstream. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--18 years, 127 ft^3/s (3.597 m^3/s), 20.90 in/yr (531 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,900 ft^3/s (309 m^3/s) May 18, 1975, gage height, 14.91 ft (4.545 m), from rating curve extended above 3,600 ft^3/s (100 m^3/s); minimum, 1.6 ft^3/s (0.045 m^3/s) Sept. 17, 18, 1964, gage height, 1.80 ft (0.549 m); minimum daily, 1.7 ft^3/s (0.048 m^3/s) Sept. 17, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods of Jan. 29, 1957, and Mar. 12, 1963, reached stages of 16.2 ft (4.94 m) and 14.4 ft (4.39 m), respectively, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,680 ft^3/s (47.6 m^3/s) Apr. 20, gage height, 6.91 ft (2.106 m); minimum daily, 6.0 ft^3/s (0.17 m^3/s) Jan. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	21	40	21	24	77	100	73	73	32	12	17
2	20	20	39	20	466	70	90	57	124	54	12	17
3	24	20	45	18	232	91	81	53	102	42	12	17
4	22	21	37	17	161	77	76	50	91	30	12	17
5	20	25	29	9.0	111	290	166	47	79	34	11	18
6	19	21	21	6.0	128	415	195	45	187	28	52	18
7	19	20	20	10	96	268	138	42	540	36	49	22
8	18	20	19	17	100	151	109	39	315	28	294	19
9	16	20	18	16	88	123	104	35	212	22	58	19
10	15	19	28	13	114	112	101	34	177	19	31	18
11	17	19	23	9.0	736	103	91	37	151	20	21	17
12	15	18	21	10	456	74	84	35	91	17	18	16
13	14	18	21	11	296	67	77	33	139	16	17	15
14	14	19	19	14	148	64	75	29	109	22	13	15
15	15	20	18	15	127	58	78	45	88	32	11	108
16	15	22	18	15	115	92	68	33	84	25	40	184
17	15	25	17	13	253	117	137	28	70	31	46	50
18	15	89	16	12	358	122	421	25	53	20	28	28
19	15	57	16	9.0	288	113	305	138	41	36	29	21
20	15	42	15	10	309	94	1110	336	38	32	26	18
21	17	24	7.0	20	202	81	720	233	37	30	22	15
22	24	21	8.0	26	146	79	422	139	34	24	20	13
23	25	22	9.0	26	205	98	246	88	27	18	18	12
24	26	89	16	23	237	136	180	76	23	16	18	12
25	43	93	19	20	193	235	120	66	22	14	17	11
26	42	63	14	22	114	184	107	50	46	14	15	11
27	30	58	13	28	100	175	97	47	24	13	14	10
28	23	60	13	31	76	149	88	56	21	13	14	10
29	21	53	14	24	---	133	85	66	19	27	15	11
30	25	45	24	20	---	124	82	55	18	18	15	10
31	24	---	24	15	---	106	---	56	---	14	15	---
TOTAL	637	1064	641.0	520.0	5879	4078	5753	2146	3035	777	975	769
MEAN	20.5	35.5	20.7	16.8	210	132	192	69.2	101	25.1	31.5	25.6
MAX	43	93	45	31	736	415	1110	336	540	54	294	184
MIN	14	18	7.0	6.0	24	58	68	25	18	13	11	10
(*)	-10	-8	.00	.00	.00	+1	+18	+3	-1	-2	+1	.00
MEAN‡	10.5	27.5	20.7	16.8	210	133	210	72.2	100	23.1	32.5	25.6
CFSM‡	.13	.33	.25	.20	2.55	1.61	2.55	.88	1.21	.28	.39	.31
IN‡	.15	.37	.29	.23	2.65	1.85	2.84	1.01	1.35	.32	.45	.35

CAL YR 1980 TOTAL 35189.0 MEAN 96.1 MAX 1150 MIN 7.0 MEAN‡ 96.1 CFSM‡ 1.16 IN‡ 15.87
WTR YR 1981 TOTAL 26274.0 MEAN 72.0 MAX 1110 MIN 6.0 MEAN‡ 72.0 CFSM‡ .87 IN‡ 11.85

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake; furnished by Corps of Engineers.

‡ Adjusted for change in contents.

03208900 POUND RIVER NEAR GEORGES FORK, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT												
09...	0900	16	410	6.9	12.0	6.9	--	--	--	--	--	--
DEC												
03...	1330	45	375	7.0	5.0	11.4	--	--	--	--	--	--
JAN												
13...	1430	11	525	6.9	.0	13.3	--	--	--	--	--	--
FEB												
26...	1030	114	303	6.7	5.0	10.6	--	--	--	--	--	--
APR												
09...	0815	95	349	7.4	10.5	8.1	--	--	--	--	--	--
MAY												
21...	1500	230	262	7.1	14.0	9.7	--	--	--	--	--	--
JUL												
09...	0845	23	632	7.7	23.0	7.0	--	--	--	--	--	--
AUG												
27...	1025	14	690	8.2	21.0	7.2	280	220	61	32	24	3.6

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
OCT												
09...	58	170	--	--	--	332	--	--	--	--	--	--
DEC												
03...	39	130	--	--	--	247	--	--	--	--	--	--
JAN												
13...	73	190	--	--	--	359	--	--	--	--	--	--
FEB												
26...	26	97	--	--	--	175	--	--	--	--	--	--
APR												
09...	96	120	--	--	--	230	--	--	--	--	--	--
MAY												
21...	19	90	--	--	--	177	--	--	--	--	--	--
JUL												
09...	69	200	--	--	--	444	--	--	--	--	--	--
AUG												
27...	69	230	6.4	.2	5.3	493	.02	.010	2	<1	100	1

< Actual value is known to be less than the value shown.

03208900 POUND RIVER NEAR GEORGES FORK, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
OCT												
09...	--	--	--	--	--	--	500	<10	--	--	--	1400
DEC												
03...	--	--	--	--	--	--	420	10	--	--	--	310
JAN												
13...	--	--	--	--	--	--	340	10	--	--	--	410
FEB												
26...	--	--	--	--	--	--	610	<10	--	--	--	580
APR												
09...	--	--	--	--	--	--	410	10	--	--	--	510
MAY												
21...	--	--	--	--	--	--	1000	10	--	--	--	550
JUL												
09...	--	--	--	--	--	--	360	20	--	--	--	220
AUG												
27...	1	10	10	30	*	19	630	20	18000	13	30	290

< Actual value is known to be less than the value shown.

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
OCT												
09...	1400	--	--	--	--	--	--	--	--	--	--	--
DEC												
03...	320	--	--	--	--	--	--	--	--	--	--	--
JAN												
13...	410	--	--	--	--	--	--	--	--	--	--	--
FEB												
26...	560	--	--	--	--	--	--	--	--	--	--	--
APR												
09...	470	--	--	--	--	--	--	--	--	--	--	--
MAY												
21...	470	--	--	--	--	--	--	--	--	--	--	--
JUL												
09...	190	--	--	--	--	--	--	--	--	--	--	--
AUG												
27...	240	1100	<.1	<.01	<1	<1	<1	20	111	<.01	21.0	98

< Actual value is known to be less than the value shown.

03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA

LOCATION.--Lat 37°07'26", long 82°26'20", Dickenson County, Hydrologic Unit 05070202, on left bank 500 ft (152 m) downstream from Clinchfield Railway bridge, 1,000 ft (305 m) downstream from Rush Creek, and 2.1 mi (3.4 km) southeast of Clintwood.

DRAINAGE AREA.--66.5 mi^2 (172.2 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1963 to current year.

REVISED RECORDS.--WDR VA-77-1: 1967(M).

GAGE.--Water-stage recorder. Datum of gage is 1,440.30 ft (439.003 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--18 years, 83.1 ft^3/s (2.353 m^3/s), 16.97 in/yr (431 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft^3/s (510 m^3/s) Apr. 4, 1977, gage height, 26.09 ft (7.952 m), from floodmark, from rating curve extended above 3,100 ft^3/s (88 m^3/s) on basis of slope-area measurement of peak flow; minimum, 0.5 ft^3/s (0.014 m^3/s) Sept. 28, 1964, gage height, 0.91 ft (0.277 m).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 20.0 ft (6.1 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,020 ft^3/s (28.9 m^3/s) at 1030 hours Apr. 20, gage height, 6.81 ft (2.076 m), no other peak above base of 1,000 ft^3/s (28 m^3/s); minimum, 2.0 ft^3/s (0.057 m^3/s) Jan. 6, gage height, 1.18 ft (0.360 m), result of freezeup; minimum daily, 2.4 ft^3/s (0.068 m^3/s) Jan. 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.6	6.2	9.9	8.3	11	34	90	46	27	36	7.5	8.7
2	7.7	5.6	8.6	7.7	194	29	74	41	31	47	7.0	8.2
3	9.2	5.7	9.2	6.1	64	26	65	36	27	27	7.2	12
4	8.6	6.0	7.1	6.3	36	32	57	33	27	18	6.7	14
5	6.9	11	7.7	4.1	32	118	137	31	34	18	6.9	10
6	6.9	7.1	8.6	2.4	23	152	145	32	107	23	33	12
7	6.1	7.8	7.1	5.2	20	100	108	30	305	38	43	9.6
8	6.1	6.2	6.9	6.9	20	65	84	26	153	22	245	8.2
9	6.0	5.6	8.0	6.3	16	50	79	23	90	16	50	9.8
10	6.0	5.7	14	5.0	99	42	69	22	63	15	26	7.0
11	5.9	5.0	8.9	3.0	395	38	62	27	47	15	18	9.7
12	5.4	4.4	7.7	3.3	105	32	56	24	36	11	18	8.4
13	5.2	4.3	7.1	3.5	69	29	51	21	84	10	13	5.8
14	5.3	4.4	7.1	4.5	54	29	47	22	65	14	12	5.4
15	5.7	5.0	6.6	5.0	38	23	68	47	42	17	13	179
16	5.3	7.3	6.6	6.0	33	39	53	29	34	14	173	179
17	5.2	7.7	7.1	4.5	138	45	76	23	31	16	81	55
18	5.3	37	6.3	3.0	148	41	195	21	23	10	33	33
19	9.0	14	6.6	3.5	99	39	192	136	20	22	23	25
20	9.2	8.3	5.0	4.0	122	34	620	219	19	13	20	20
21	6.2	6.9	2.6	10	95	29	340	114	18	14	19	16
22	5.0	5.9	2.8	17	65	29	189	72	17	14	15	14
23	5.2	6.6	3.2	12	97	42	137	53	15	9.0	12	13
24	5.2	51	7.1	11	103	83	136	42	12	8.8	11	12
25	12	36	7.7	9.5	70	174	104	34	15	11	10	11
26	15	18	5.0	11	53	140	86	31	22	8.0	11	10
27	7.4	17	5.2	13	41	110	73	33	13	6.8	11	10
28	5.8	23	5.4	13	37	82	64	39	11	18	8.8	9.7
29	6.0	16	6.3	9.7	---	67	58	39	11	25	8.1	8.6
30	6.3	12	11	7.8	---	103	52	30	11	13	7.5	8.6
31	8.4	---	9.9	6.0	---	107	---	28	---	11	7.5	---
TOTAL	216.1	356.7	222.3	218.6	2277	1963	3567	1402	1410	540.6	957.2	732.7
MEAN	6.97	11.9	7.17	7.05	81.3	63.3	119	45.2	47.0	17.4	30.9	24.4
MAX	15	51	14	17	395	174	620	219	305	47	245	179
MIN	5.0	4.3	2.6	2.4	11	23	47	21	11	6.8	6.7	5.4
CFSM	.11	.18	.11	.11	1.22	.95	1.79	.68	.71	.26	.47	.37
IN.	.12	.20	.12	.12	1.27	1.10	2.00	.78	.79	.30	.54	.41

CAL YR 1980 TOTAL 22919.1 MEAN 62.6 MAX 729 MIN 2.6 CFSM .94 IN 12.82
WTR YR 1981 TOTAL 13863.2 MEAN 38.0 MAX 620 MIN 2.4 CFSM .57 IN 7.75

03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969, 1978 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT												
08...	1400	5.9	1000	7.0	13.0	12.7	--	--	--	--	--	--
DEC												
03...	1120	10	670	7.2	3.5	12.4	--	--	--	--	--	--
JAN												
13...	1230	3.5	900	6.6	.9	9.9	--	--	--	--	--	--
FEB												
20...	1200	53	420	6.8	5.0	11.0	--	--	--	--	--	--
APR												
09...	0905	74	195	7.5	10.0	9.9	--	--	--	--	--	--
MAY												
22...	0900	76	405	7.4	12.0	9.2	--	--	--	--	--	--
JUL												
09...	1110	16	724	7.0	24.0	7.7	--	--	--	--	--	--
AUG												
27...	1150	11	910	6.2	20.5	8.2	450	370	92	53	21	3.9

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
OCT												
08...	81	400	--	--	--	736	--	--	--	--	--	--
DEC												
03...	60	260	--	--	--	442	--	--	--	--	--	--
JAN												
13...	93	400	--	--	--	749	--	--	--	--	--	--
FEB												
20...	30	150	--	--	--	259	--	--	--	--	--	--
APR												
09...	25	66	--	--	--	135	--	--	--	--	--	--
MAY												
22...	30	150	--	--	--	278	--	--	--	--	--	--
JUL												
09...	72	300	--	--	--	544	--	--	--	--	--	--
AUG												
27...	79	303	6.2	.1	5.1	646	.35	.010	1	<1	100	2

< Actual value is known to be less than the value shown.

03208950 CRANES NEST RIVER NEAR CLINTWOOD, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
OCT 08...	--	--	--	--	--	--	280	10	--	--	--	400
DEC 03...	--	--	--	--	--	--	340	10	--	--	--	380
JAN 13...	--	--	--	--	--	--	730	400	--	--	--	2300
FEB 26...	--	--	--	--	--	--	330	10	--	--	--	200
APR 09...	--	--	--	--	--	--	650	20	--	--	--	80
MAY 22...	--	--	--	--	--	--	620	110	--	--	--	140
JUL 09...	--	--	--	--	--	--	1100	10	--	--	--	200
AUG 27...	<1	10	4	20	3	6	360	10	7400	9	<10	210

< Actual value is known to be less than the value shown.

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
OCT 08...	400	--	--	--	--	--	--	--	--	--	--	--
DEC 03...	370	--	--	--	--	--	--	--	--	--	--	--
JAN 13...	1600	--	--	--	--	--	--	--	--	--	--	--
FEB 26...	200	--	--	--	--	--	--	--	--	--	--	--
APR 09...	60	--	--	--	--	--	--	--	--	--	--	--
MAY 22...	140	--	--	--	--	--	--	--	--	--	--	--
JUL 09...	190	--	--	--	--	--	--	--	--	--	--	--
AUG 27...	200	620	<.1	<.01	1	<1	<1	30	39	<.01	16.0	7

< Actual value is known to be less than the value shown.

03208990 JOHN W. FLANNAGAN RESERVOIR NEAR HAYSI, VA

LOCATION.--Lat 37°14'00", long 82°20'56", Dickenson County, Hydrologic Unit 05070202, in control tower of John W. Flannagan Dam on Pound River, 1.3 mi (2.1 km) upstream from Blacklog Branch, and 3.7 mi (6.0 km) northwest of Haysi.

DRAINAGE AREA.--221 mi^2 (572 km^2).

PERIOD OF RECORD.--September 1964 to current year.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Mar. 31, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by rockfill dam. Spillway with crest at elevation 1,410.0 ft (429.77 m) is in a saddle 0.3 mi (0.5 km) upstream from dam and is equipped with 6 radial gates 36 ft (11.0 m) high by 42 ft (12.8 m) wide. Except during major floods, all discharge will be through a diversion tunnel, the invert of the entrance of which is at elevation 1,230.0 ft (374.90 m). Storage began in September 1961 during construction with peak discharge affected thereafter; initial filling for regular operations started in March 1965. Total capacity at elevation 1,446.0 ft (440.74 m), top of gates, is 145,700 acre-ft (180 hm^3) of which 78,600 acre-ft (96.9 hm^3) is controlled flood storage for summer operations between elevations 1,396.0 ft (425.50 m), top of summer conservation pool, and 1,446.0 ft (440.74 m); an additional 16,500 acre-ft (20.3 hm^3) is available for flood control during the period December to March between elevations 1,380.0 ft (420.62 m), top of winter conservation pool, and 1,396.0 ft (425.50 m); contents at established minimum pool, 1,314.0 ft (400.51 m), is 12,000 acre-ft (14.8 hm^3); dead storage is 300 acre-ft (370,000 m^3) below elevation 1,230.0 ft (374.90 m). Figures given herein represent total contents. Reservoir is used for flood control, low-water augmentation for water-quality control, and recreation. Corps of Engineers satellite and gage-height telemeters at station.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 116,500 acre-ft (144 hm^3) Apr. 7, 1977, elevation, 1,430.80 ft (436.108 m); minimum (after initial filling for regular operation), 11,800 acre-ft (14.5 hm^3) Apr. 1, 1965, elevation, 1,313.42 ft (400.330 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 72,100 acre-ft (88.9 hm^3) June 7, elevation, 1,400.28 ft (426.805 m); minimum, 49,600 acre-ft (61.2 hm^3) Jan. 20, elevation, 1,378.92 ft (420.295 m).

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30	1396.05	67100	
Oct. 31	1388.12	58500	-8600
Nov. 30	1380.50	51000	-7500
Dec. 31	1379.35	50000	-1000
CAL YR 1980			-800
Jan. 31	1379.95	50500	+500
Feb. 28	1380.57	51100	+600
Mar. 31	1381.47	51900	+800
Apr. 30	1396.73	67900	+16000
May 31	1398.63	70100	+2200
June 30	1398.38	69800	-300
July 31	1398.00	69400	-400
Aug. 31	1396.86	68100	-1300
Sept. 30	1395.95	67000	-1100
WTR YR 1981			-100

03209000 POUND RIVER BELOW FLANNAGAN DAM, NEAR HAYSI, VA

LOCATION.--Lat 37°14'13", long 82°20'36", Dickenson County, Hydrologic Unit 05070202, on right bank 1,100 ft (335 m) upstream from Blacklog Branch, 1,700 ft (518 m) downstream from John W. Flannagan Dam, 1.4 mi (2.3 km) upstream from mouth, and 3.4 mi (5.5 km) northwest of Haysi.

DRAINAGE AREA.--221 mi² (572 km²).

PERIOD OF RECORD.--July 1926 to current year. Monthly discharge only for some periods, published in WSP 1305. Prior to October 1963, published as Pound River near Haysi.

REVISED RECORDS.--WSP 953: 1940-41. WSP 1003: 1942, 1943(P). WSP 1275: 1927-30, 1931(M), 1932-39.

GAGE.--Water-stage recorder. Datum of gage is 1,200.00 ft (365.760 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Dec. 20, 1939, nonrecording gage at site 3.8 mi (6.1 km) upstream at different datum. Dec. 20, 1939, to Sept. 30, 1963, water-stage recorder at site 4.6 mi (7.4 km) upstream at datum 79.91 ft (24.357 m) higher.

REMARKS.--Records good. Flow regulated since March 1965 by John W. Flannagan Reservoir (station 03208990) 1,700 ft (518 m) upstream and since August 1966 by North Fork Pound River Lake (station 03208680) 33 mi (53 km) upstream. Corps of Engineers satellite telemeter at station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--55 years, 277 ft³/s (7.845 m³/s), 17.02 in/yr (432 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 30,000 ft³/s (850 m³/s) Mar. 23, 1929, gage height, 16.5 ft (5.03 m), from floodmarks, site and datum then in use; minimum, less than 0.1 ft³/s (0.003 m³/s) on several days in September 1932. Maximum discharge since construction of John W. Flannagan Dam in 1965, 4,540 ft³/s (129 m³/s) Apr. 8, 1977, gage height, 8.20 ft (2.499 m); minimum, 1.2 ft³/s (0.034 m³/s) Feb. 16, 1968, gage height, 1.42 ft (0.433 m); minimum daily, 2.3 ft³/s (0.065 m³/s) June 26-29, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,740 ft³/s (49.3 m³/s) June 7, gage height, 5.49 ft (1.673 m); minimum, 2.7 ft³/s (0.076 m³/s) Sept. 15, gage height, 1.56 ft (0.475 m); minimum daily, 15 ft³/s (0.42 m³/s) Jan. 25-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	61	164	140	44	16	209	63	150	169	59	47	91
2	67	164	67	44	648	150	51	109	315	191	47	91
3	66	164	52	44	481	117	49	109	343	91	47	91
4	278	164	54	44	289	145	49	109	282	54	63	69
5	282	164	54	44	189	400	51	109	191	56	91	47
6	293	164	54	44	153	817	51	109	319	56	75	46
7	136	166	56	44	122	724	51	109	1380	56	44	46
8	136	143	56	46	106	392	51	75	1480	57	282	39
9	136	136	56	46	138	351	52	61	547	57	166	42
10	155	136	57	46	153	312	52	63	367	57	61	42
11	166	136	57	46	987	268	52	63	300	57	51	42
12	166	138	57	46	987	228	52	63	158	57	44	42
13	166	138	56	46	685	153	51	63	148	57	56	42
14	166	140	56	46	388	120	51	63	304	59	73	43
15	166	140	56	47	297	120	51	63	161	59	73	23
16	166	161	56	47	297	145	51	63	161	59	73	327
17	166	186	56	47	542	237	51	63	161	59	73	206
18	166	200	44	47	896	264	51	63	122	59	104	89
19	166	228	40	47	775	264	49	63	73	59	129	52
20	166	241	40	47	653	264	183	355	75	59	115	52
21	166	209	40	49	596	264	823	509	75	59	91	52
22	166	197	35	49	433	209	1460	331	75	59	91	52
23	166	197	69	35	343	189	1160	244	63	59	91	52
24	166	268	111	16	404	268	566	115	49	59	91	52
25	166	308	109	15	463	601	335	75	49	59	91	52
26	164	271	109	15	396	643	228	75	49	61	91	51
27	164	231	109	15	261	537	228	75	51	61	91	51
28	164	231	109	15	215	456	177	75	51	56	91	51
29	164	231	85	16	---	279	177	131	51	44	91	52
30	164	231	43	16	---	113	180	155	52	46	91	51
31	164	---	43	16	---	67	---	155	---	46	91	---
TOTAL	5084	5647	2026	1169	11913	9304	6496	3865	7621	1927	2715	2038
MEAN	164	188	65.4	37.7	425	300	217	125	254	62.2	87.6	67.9
MAX	293	308	140	49	987	817	1460	509	1480	191	282	327
MIN	61	136	35	15	16	67	49	61	49	44	44	23
(*)	-150	-134	-16	+8	+11	+14	+287	+39	-6	-9	-20	-18
MEAN‡	14.0	54.2	49.4	45.7	436	314	504	164	248	53.2	67.6	49.9
CFSM‡	.06	.25	.22	.21	1.97	1.42	2.28	.74	1.12	.24	.31	.23
IN‡	.07	.27	.26	.24	2.06	1.64	2.54	.85	1.25	.28	.35	.25

CAL YR 1980 TOTAL 83890 MEAN 229 MAX 2260 MIN 33 MEAN‡ 228 CFSM‡ 1.03 IN‡ 14.06
WTR YR 1981 TOTAL 59805 MEAN 164 MAX 1480 MIN 15 MEAN‡ 164 CFSM‡ .74 IN‡ 10.07

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake and John W. Flannagan Reservoirs; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

03209200 RUSSELL FORK AT BARTLICK, VA

LOCATION.--Lat 37°14'45", long 82°19'25", Dickenson County, Hydrologic Unit 05070202, on left bank at Bartlick, just upstream from bridge on State Highway 611, 0.2 mi (0.3 km) downstream from Pound River, and 1.1 mi (1.8 km) upstream from Fall Branch.

DRAINAGE AREA.--526 mi² (1,362 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,165.00 ft (355.092 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for period of no gage-height record, July 24 to Aug. 25, which are fair. Flow regulated since March 1965 by John W. Flannagan Reservoir (station 03208990) 1.9 mi (3.1 km) upstream and since August 1966 by North Fork Pound River Lake (station 03208680) 35 mi (56 km) upstream. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--19 years, 694 ft³/s (19.65 m³/s), 17.92 in/yr (455 mm/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft³/s (1,420 m³/s) Apr. 4, 1977, gage height, 27.55 ft (8.397 m), from rating curve extended above 11,000 ft³/s (310 m³/s) on basis of computation of peak flow over dam; minimum, 5.3 ft³/s (0.15 m³/s) Sept. 18, 1964, gage height, 5.03 ft (1.533 m); minimum daily, 5.5 ft³/s (0.16 m³/s) Sept. 17, 1964.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of about 30 ft (9.1 m), from information by local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,260 ft³/s (177 m³/s) Apr. 20, gage height, 12.43 ft (3.789 m); minimum, 28 ft³/s (0.79 m³/s) Jan. 31, gage height, 6.12 ft (1.865 m); minimum daily, 53 ft³/s (1.50 m³/s) Dec. 22, Jan. 31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	110	200	227	96	76	485	445	417	424	149	76	117
2	118	198	142	94	1520	384	397	336	676	410	70	127
3	122	196	120	86	1010	313	341	307	632	206	80	127
4	305	196	109	75	526	347	318	285	604	153	90	120
5	305	202	104	68	382	944	557	269	604	134	120	76
6	312	202	101	66	322	1890	799	258	1070	137	150	76
7	164	199	98	71	261	1510	646	253	4020	149	250	145
8	162	175	96	83	255	919	525	212	2930	130	1300	91
9	160	160	102	82	235	748	472	178	1290	117	300	77
10	181	163	114	77	298	639	438	170	850	108	140	70
11	196	162	112	62	2300	550	403	178	654	102	110	63
12	194	160	105	63	1670	485	384	187	424	98	100	60
13	193	157	101	62	1140	377	359	165	410	96	110	58
14	191	157	101	65	764	324	347	157	661	96	120	58
15	189	159	98	72	583	291	453	397	403	96	110	291
16	189	182	98	72	550	410	431	296	353	117	160	1000
17	188	223	96	66	1210	639	570	227	347	134	140	438
18	184	314	82	62	1990	654	1190	202	258	108	150	197
19	186	330	69	63	1520	604	1230	1080	187	99	170	120
20	194	311	64	65	1380	557	3850	3700	178	102	140	105
21	193	272	55	90	1280	518	3130	1680	170	120	130	99
22	191	250	53	119	946	453	2650	992	170	105	120	95
23	189	247	86	124	992	479	1990	692	145	96	120	91
24	186	538	142	101	1290	692	1320	445	120	95	115	84
25	233	614	143	87	1080	1490	964	318	111	90	115	81
26	291	422	140	92	850	1430	748	280	123	95	114	79
27	235	353	136	98	597	1160	669	275	114	92	114	77
28	212	378	136	97	490	928	550	472	102	98	114	74
29	207	362	120	90	---	669	511	654	99	100	111	71
30	203	334	94	83	---	511	485	531	98	94	111	70
31	202	---	98	53	---	479	---	453	---	80	117	---
TOTAL	6185	7816	3342	2484	25525	21881	27172	16066	18227	3806	5167	4237
MEAN	200	261	108	80.1	912	706	906	518	608	123	167	141
MAX	312	614	227	124	2300	1890	3850	3700	4020	410	1300	1000
MIN	110	157	53	53	76	291	318	157	98	80	70	58
(*)	-150	-134	-16	+0	+11	+14	+287	+39	-6	-9	-20	-18
MEAN‡	49.5	127	91.8	80.1	923	720	1193	557	602	114	147	123
CFSM‡	.09	.24	.17	.17	1.75	1.37	2.27	1.06	1.14	.22	.28	.23
IN‡	.11	.27	.20	.19	1.83	1.58	2.53	1.22	1.28	.25	.32	.26

CAL YR 1980 TOTAL 185741 MEAN 507 MAX 4900 MIN 53 MEAN‡ 506 CFSM‡ .96 IN‡ 13.11
WTR YR 1981 TOTAL 141908 MEAN 389 MAX 4020 MIN 53 MEAN‡ 389 CFSM‡ .74 IN‡ 10.04

* Change in contents, equivalent in cubic feet per second, in North Fork Pound River Lake and John W. Flannagan Reservoirs; furnished by Corps of Engineers.
‡ Adjusted for change in contents.

03209200 RUSSELL FORK AT BARTLICK, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1979 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT												
08...	0900	160	353	6.8	13.0	9.8	--	--	--	--	--	--
DEC												
02...	1545	126	405	8.0	8.0	11.0	--	--	--	--	--	--
JAN												
12...	1520	64	475	6.9	.5	13.8	--	--	--	--	--	--
FEB												
23...	1500	973	265	6.9	7.5	11.2	--	--	--	--	--	--
APR												
08...	1115	518	220	6.8	10.0	11.2	--	--	--	--	--	--
20...	1910	5070	--	--	--	--	--	--	--	--	--	--
21...	0832	2760	--	--	--	--	--	--	--	--	--	--
MAY												
21...	0845	1830	161	6.7	11.0	10.6	--	--	--	--	--	--
JUL												
07...	1420	149	422	7.7	22.5	8.7	--	--	--	--	--	--
AUG												
25...	0945	114	315	7.6	15.0	9.5	120	70	24	14	16	1.8

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
OCT												
08...	44	110	--	--	--	216	--	--	--	--	--	--
DEC												
02...	56	120	--	--	--	250	--	--	--	--	--	--
JAN												
12...	56	150	--	--	--	285	--	--	--	--	--	--
FEB												
23...	34	77	--	--	--	169	--	--	--	--	--	--
APR												
08...	33	55	--	--	--	127	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
21...	23	42	--	--	--	95	--	--	--	--	--	--
JUL												
07...	97	99	--	--	--	258	--	--	--	--	--	--
AUG												
25...	48	90	4.7	.1	5.9	199	.40	<.010	1	<1	100	2

< Actual value is known to be less than the value shown.

03209200 RUSSELL FORK AT BARTLICK, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
OCT												
08...	--	--	--	--	--	--	170	10	--	--	--	150
DEC												
02...	--	--	--	--	--	--	570	10	--	--	--	150
JAN												
12...	--	--	--	--	--	--	120	20	--	--	--	30
FEB												
23...	--	--	--	--	--	--	2900	20	--	--	--	120
APR												
08...	--	--	--	--	--	--	460	20	--	--	--	60
20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
21...	--	--	--	--	--	--	2100	40	--	--	--	100
JUL												
07...	--	--	--	--	--	--	1500	10	--	--	--	70
AUG												
25...	<1	10	6	<10	3	7	160	10	10000	16	10	80

< Actual value is known to be less than the value shown.

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATE-RIAL (GM/KG)	SEDI-MENT, SUS-PENDED (MG/L)
OCT												
08...	120	--	--	--	--	--	--	--	--	--	--	5
DEC												
02...	90	--	--	--	--	--	--	--	--	--	--	13
JAN												
12...	20	--	--	--	--	--	--	--	--	--	--	5
FEB												
23...	50	--	--	--	--	--	--	--	--	--	--	71
APR												
08...	40	--	--	--	--	--	--	--	--	--	--	12
20...	--	--	--	--	--	--	--	--	--	--	--	781
21...	--	--	--	--	--	--	--	--	--	--	--	166
MAY												
21...	30	--	--	--	--	--	--	--	--	--	--	65
JUL												
07...	20	--	--	--	--	--	--	--	--	--	--	63
AUG												
25...	60	390	<.1	<.01	<1	<1	<1	10	32	<.01	15.0	6

< Actual value is known to be less than the value shown.

03213577 KERSHAW BRANCH NEAR HURLEY, VA

LOCATION.--Lat 37°27'01", long 82°00'40", Buchanan County, Hydrologic Unit 05070201, on right bank 0.5 mi (0.8 km) upstream from Guess Fork and 2.1 mi (3.4 km) north of Hurley.

DRAINAGE AREA.--0.60 mi² (1.55 km²).

PERIOD OF RECORD.--October 1980 to September 1981.

GAGE.--Water-stage recorder. Datum of gage is 1,140 ft (347 m), from topographic map.

REMARKS.--Records good.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft³/s (0.57 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Apr. 5	1700	22	0.623	2.15	0.655	June 1	1600	22	0.623	2.15	0.655
Apr. 20	0325	41	1.16	2.37	.722	June 6	1900	*97	2.75	2.95	.899

Minimum daily discharge, 0.02 ft³/s (0.001 m³/s) Sept. 10-14, 29, 30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.10	.07	.34	.21	.25	.79	.94	.24	3.8	.15	.09	.04
2	.10	.07	.32	.21	1.1	.70	1.0	.25	2.7	.10	.09	.04
3	.12	.07	.28	.20	.34	.59	.88	.17	1.4	.26	.10	.06
4	.10	.07	.23	.18	.38	.86	.67	.17	1.9	.14	.08	.06
5	.09	.07	.23	.14	.54	3.7	4.8	.22	2.1	.11	.08	.03
6	.08	.06	.24	.13	.36	2.3	5.8	.22	9.4	.63	.11	.03
7	.08	.07	.24	.12	.39	1.5	2.0	.20	.55	.19	.11	.03
8	.08	.07	.21	.12	.49	1.1	1.2	.18	.88	.14	.17	.04
9	.08	.07	.34	.11	.45	.75	1.0	.17	1.5	.11	.09	.03
10	.08	.07	.36	.11	.41	.56	2.8	.17	.83	.10	.09	.02
11	.08	.06	.32	.11	.90	.50	2.5	.22	.49	.10	.16	.02
12	.07	.06	.28	.10	.79	.42	1.2	.19	.45	.09	.12	.02
13	.07	.06	.26	.10	.65	.39	1.2	.17	.58	.11	.09	.02
14	.06	.07	.22	.13	.54	.31	.99	.25	.42	.20	.08	.02
15	.06	.07	.21	.11	.46	.27	.67	.44	.36	.10	.08	.10
16	.06	.08	.20	.10	.50	.70	.58	.20	.36	.11	.25	.10
17	.06	.28	.15	.09	1.7	.52	2.2	.18	.36	.09	.09	.05
18	.06	.68	.13	.10	1.7	.38	2.5	.28	.34	.08	.07	.04
19	.06	.24	.12	.09	1.2	.28	1.8	3.8	.26	.08	.05	.04
20	.07	.16	.10	.10	1.7	.24	6.9	2.2	.22	.10	.04	.04
21	.05	.13	.09	.33	1.2	.20	3.2	.99	.20	.12	.04	.04
22	.05	.11	.08	.47	.88	.22	1.9	.67	.18	.14	.04	.04
23	.04	.24	.10	.47	2.3	.42	1.6	.55	.17	.09	.03	.04
24	.05	2.7	.20	.38	2.1	3.3	1.8	.78	.14	.08	.03	.04
25	.34	.70	.16	.30	1.2	3.2	1.2	.70	.45	.08	.03	.03
26	.11	.42	.14	.30	.84	2.1	.78	.52	.46	.07	.03	.03
27	.08	.53	.14	.32	.60	1.4	.55	.55	.20	.07	.03	.03
28	.08	.51	.14	.22	.63	.88	.49	.93	.11	.40	.03	.03
29	.08	.44	.15	.18	---	.67	.34	.82	.10	1.7	.04	.02
30	.07	.44	.20	.17	---	.61	.30	1.9	.14	.26	.04	.02
31	.07	---	.18	.17	---	.52	---	2.7	---	.19	.04	---
TOTAL	2.58	8.67	6.36	5.87	24.60	30.38	53.79	21.03	31.05	6.19	2.42	1.15
MEAN	.083	.29	.21	.19	.88	.98	1.79	.68	1.04	.20	.078	.038
MAX	.34	2.7	.36	.47	2.3	3.7	6.9	3.8	9.4	1.7	.25	.10
MIN	.04	.06	.08	.09	.25	.20	.30	.17	.10	.07	.03	.02
CFSM	.14	.48	.35	.32	1.47	1.63	2.98	1.13	1.73	.33	.13	.06
IN.	.16	.54	.39	.36	1.52	1.88	3.33	1.30	1.92	.38	.15	.07

WTR YR 1981 TOTAL 194.09 MEAN .53 MAX 9.4 MIN .02 CFSM .98 IN 12.01

03213590 KNOX CREEK AT KELSA, VA

LOCATION.--Lat 37°27'02", long 82°03'34", Buchanan County, Hydrologic Unit 05070201, on left bank at bridge on State Highway 697, 0.3 mi (0.5 km) downstream from Pawpaw Creek, 0.8 mi (1.3 km) northeast of Kelsa, and at mile 10.0 (16.1 km).

DRAINAGE AREA.--84.3 mi² (218.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1980 to September 1981 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

GAGE.--Water-stage recorder. Altitude of gage is 945 ft (288 m), from topographic map.

REMARKS.--Records fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,350 ft³/s (265 m³/s) June 6, 1981, gage height, 16.86 ft (5.139 m), from rating curve extended as explained below; minimum daily, 1.3 ft³/s (0.037 m³/s) Sept. 14, 1981.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of July 15, 1979, reached a stage of 19.0 ft (5.79 m), discharge, 11,600 ft³/s (329 m³/s), from rating curve extended above 450 ft³/s (13 m³/s) on basis of slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,350 ft³/s (265 m³/s) at 2050 hours June 6, gage height, 16.86 ft (5.139 m), no other peak above base of 1,600 ft³/s (45 m³/s), from rating curve extended as explained above; minimum daily, 1.3 ft³/s (0.037 m³/s) Sept. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	8.5	44	26	35	94	114	84	267	91	9.0	3.2
2	17	8.1	43	27	350	83	132	71	343	56	8.5	4.4
3	18	7.2	37	25	250	74	122	65	253	47	33	5.9
4	15	8.1	33	16	150	115	102	59	284	50	47	22
5	13	8.5	33	7.0	100	525	313	56	410	38	18	6.2
6	9.9	7.2	30	12	70	410	321	54	2100	50	51	10
7	8.5	6.5	26	26	60	256	211	51	1490	30	28	42
8	8.1	6.8	24	21	55	165	150	46	384	22	65	13
9	8.1	6.8	36	19	45	122	146	42	233	17	31	10
10	7.2	6.8	37	16	50	93	413	41	163	14	18	3.5
11	6.5	5.6	33	9.0	550	74	431	46	117	13	12	2.5
12	5.3	4.8	31	10	300	62	291	44	102	11	18	2.0
13	4.8	4.4	29	16	200	55	235	41	109	9.0	9.9	1.5
14	4.4	4.4	25	17	150	46	228	43	74	28	6.5	1.3
15	4.4	5.3	24	16	110	41	189	114	56	18	6.2	25
16	4.4	6.8	25	13	90	120	165	58	47	14	23	65
17	4.2	27	21	10	200	146	437	48	84	14	12	21
18	4.6	102	19	9.0	350	132	514	46	48	10	6.0	11
19	5.6	41	18	10	220	104	341	404	41	16	4.0	7.6
20	4.6	28	12	13	300	80	953	698	40	23	3.5	6.2
21	4.2	23	8.0	26	200	68	492	274	37	20	3.0	5.3
22	5.0	19	9.0	46	170	69	313	181	31	14	2.5	4.4
23	6.8	21	10	56	220	120	261	125	26	9.0	2.3	3.8
24	6.5	298	26	47	300	261	225	86	21	7.2	2.0	3.2
25	42	158	17	40	182	378	184	69	76	6.2	1.8	3.0
26	22	65	16	45	123	281	153	60	117	5.9	1.7	2.7
27	14	59	15	47	87	208	134	65	43	5.0	1.6	2.5
28	13	67	19	50	77	146	114	100	33	58	1.6	2.4
29	18	77	21	45	---	117	104	97	25	50	1.5	2.3
30	13	55	27	40	---	112	100	114	30	20	1.5	2.2
31	9.4	---	24	20	---	82	---	148	---	13	3.8	---
TOTAL	324.5	1145.8	772.0	780.0	4994	4639	7888	3430	7084	779.3	432.9	295.1
MEAN	10.5	38.2	24.9	25.2	178	150	263	111	236	25.1	14.0	9.84
MAX	42	298	44	56	550	525	953	698	2100	91	65	65
MIN	4.2	4.4	8.0	7.0	35	41	100	41	21	5.0	1.5	1.3
CFSM	.13	.45	.30	.30	2.11	1.78	3.12	1.32	2.80	.30	.17	.12
IN.	.14	.51	.34	.34	2.20	2.05	3.48	1.51	3.13	.34	.19	.13

WTR YR 1981 TOTAL 32564.6 MEAN 89.2 MAX 2100 MIN 1.3 CFSM 1.06 IN 14.37

03213590 KNOX CREEK AT KELSA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1979 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT												
07...	0915	8.5	420	6.7	9.5	9.2	--	--	--	--	--	--
DEC												
03...	1115	36	265	6.7	4.0	13.5	--	--	--	--	--	--
JAN												
13...	1420	17	320	7.1	.0	14.2	--	--	--	--	--	--
FEB												
24...	1140	289	168	6.8	6.5	13.1	--	--	--	--	--	--
APR												
07...	1050	216	158	6.4	8.0	11.6	--	--	--	--	--	--
20...	1735	944	--	--	--	--	--	--	--	--	--	--
21...	1145	467	--	--	--	--	--	--	--	--	--	--
MAY												
20...	1425	404	155	6.0	13.0	10.5	--	--	--	--	--	--
JUL												
08...	1300	22	395	9.2	27.0	10.7	--	--	--	--	--	--
AUG												
26...	1315	1.7	590	8.1	23.0	8.8	260	170	66	24	20	3.7

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
OCT												
07...	78	140	--	--	--	315	--	--	--	--	--	--
DEC												
03...	47	80	--	--	--	174	--	--	--	--	--	--
JAN												
13...	47	93	--	--	--	197	--	--	--	--	--	--
FEB												
24...	19	48	--	--	--	104	--	--	--	--	--	--
APR												
07...	15	50	--	--	--	110	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
20...	16	42	--	--	--	112	--	--	--	--	--	--
JUL												
08...	67	110	--	--	--	270	--	--	--	--	--	--
AUG												
26...	94	180	13	.2	3.2	384	.04	.010	2	<1	100	1

< Actual value is known to be less than the value shown.

03213590 KNOX CREEK AT KELSA, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
OCT												
07...	--	--	--	--	--	--	270	30	--	--	--	80
DEC												
03...	--	--	--	--	--	--	700	20	--	--	--	140
JAN												
13...	--	--	--	--	--	--	230	20	--	--	--	100
FEB												
24...	--	--	--	--	--	--	2200	10	--	--	--	120
APR												
07...	--	--	--	--	--	--	720	<10	--	--	--	80
20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
20...	--	--	--	--	--	--	4900	40	--	--	--	190
JUL												
08...	--	--	--	--	--	--	520	20	--	--	--	60
AUG												
26...	1	10	6	10	4	13	350	10	9000	9	20	60

< Actual value is known to be less than the value shown.

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATE-RIAL (GM/KG)	SEDI-MENT, SUS-PENDED (MG/L)
OCT												
07...	70	--	--	--	--	--	--	--	--	--	--	3
DEC												
03...	110	--	--	--	--	--	--	--	--	--	--	18
JAN												
13...	120	--	--	--	--	--	--	--	--	--	--	1
FEB												
24...	70	--	--	--	--	--	--	--	--	--	--	71
APR												
07...	60	--	--	--	--	--	--	--	--	--	--	33
20...	--	--	--	--	--	--	--	--	--	--	--	1300
21...	--	--	--	--	--	--	--	--	--	--	--	252
MAY												
20...	40	--	--	--	--	--	--	--	--	--	--	304
JUL												
08...	30	--	--	--	--	--	--	--	--	--	--	16
AUG												
26...	50	420	.4	<.01	1	<1	1	10	35	<.01	6.00	2

< Actual value is known to be less than the value shown.

03471500 SOUTH FORK HOLSTON RIVER AT RIVERSIDE, NEAR CHILHOWIE, VA

LOCATION.--Lat 36°45'37", long 81°37'53", Smyth County, Hydrologic Unit 06010102, on right bank 400 ft (122 m) upstream from highway bridge at Riverside, 900 ft (274 m) upstream from Spring Branch, 3.2 mi (5.1 km) downstream from Redstone Branch, 4.0 mi (6.4 km) southeast of Chilhowie, and at mile 97.2 (156.4 km).

DRAINAGE AREA.--76.1 mi^2 (197.1 km^2).

PERIOD OF RECORD.--October 1920 to December 1931, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1306. Prior to October 1924, published as "near Chilhowie." June 1907 to December 1909, at site 4.5 mi (7.2 km) downstream also published as "near Chilhowie"; records not equivalent.

REVISED RECORDS.--WSP 1033: 1943-44(m). WSP 1306: Drainage area, 1921-31(M).

GAGE.--Water-stage recorder. Datum of gage is 2,106.77 ft (642.143 m) National Geodetic Vertical Datum of 1929. Nov. 1, 1920, to Nov. 14, 1931, nonrecording gage at site 400 ft (122 m) downstream at same datum.

REMARKS.--Records good. Prior to August 1951, diurnal fluctuation at low flow caused by mill 500 ft (152 m) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--50 years, 112 ft^3/s (3.172 m^3/s), 19.99 in/yr (508 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,600 ft^3/s (272 m^3/s) Nov. 6, 1977, gage height, 10.20 ft (3.109 m), from rating curve extended above 3,700 ft^3/s (100 m^3/s) on basis of slope-area measurement of peak flow; minimum recorded, 2 ft^3/s (0.06 m^3/s) Aug. 26, Oct. 15, 1943, Aug. 9, 11, 1944, Oct. 19, 1945, but may have been less in 1925 and 1926 before installation of water-stage recorder; minimum daily, 8 ft^3/s (0.23 m^3/s) July 19, 1926.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 650 ft^3/s (18 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 21	0430	1010	28.6	4.08	1.244	May 27	2230	*1250	35.4	4.49	1.369

Minimum daily discharge, 15 ft^3/s (0.42 m^3/s Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	42	60	43	50	116	162	89	248	67	35	28
2	38	41	58	42	187	102	143	84	237	57	35	28
3	37	40	58	40	167	93	127	79	210	56	35	28
4	35	40	55	33	120	95	116	74	178	54	32	57
5	35	39	55	22	96	160	119	70	358	51	33	46
6	35	38	54	25	85	190	108	68	303	102	44	36
7	34	37	52	30	78	178	100	66	485	83	41	35
8	32	36	51	33	75	150	95	63	408	67	69	35
9	32	36	53	35	66	129	97	60	300	60	50	36
10	31	36	58	30	64	117	92	59	232	56	42	31
11	31	35	54	20	248	105	88	112	198	52	39	29
12	30	34	54	18	265	97	84	112	157	52	38	28
13	29	34	53	20	184	93	83	93	147	49	36	27
14	30	33	51	28	143	92	83	84	161	50	34	27
15	29	35	50	34	121	79	157	93	128	50	33	38
16	30	38	49	34	105	80	160	87	113	48	34	55
17	29	38	48	20	103	77	152	84	102	50	35	40
18	33	47	46	15	108	73	165	81	95	44	33	34
19	47	50	44	16	129	71	170	118	88	47	31	32
20	37	49	42	20	244	67	314	321	84	44	31	30
21	34	47	38	30	262	66	437	810	81	44	29	29
22	32	45	28	36	193	64	294	416	77	45	29	28
23	31	45	32	36	212	65	212	259	72	40	29	28
24	31	52	40	35	269	63	184	180	68	40	29	27
25	70	60	38	34	202	71	152	142	67	40	29	27
26	83	61	35	36	162	79	136	120	68	38	28	26
27	64	63	30	43	138	81	123	516	62	38	28	26
28	57	67	35	51	123	80	111	995	60	39	27	25
29	52	65	38	52	---	78	103	658	59	45	26	25
30	48	63	45	53	---	111	96	437	60	39	27	25
31	45	---	43	46	---	172	---	320	---	36	27	---
TOTAL	1221	1346	1447	1010	4199	3094	4463	6750	4906	1583	1068	966
MEAN	39.4	44.9	46.7	32.6	150	99.8	149	218	164	51.1	34.5	32.2
MAX	83	67	60	53	269	190	437	995	485	102	69	57
MIN	29	33	28	15	50	63	83	59	59	36	26	25
CFSM	.52	.59	.61	.43	1.97	1.31	1.96	2.87	2.16	.67	.45	.42
IN.	.60	.66	.71	.49	2.05	1.51	2.18	3.30	2.40	.77	.52	.47

CAL YR 1980 TOTAL 37262 MEAN 102 MAX 1040 MIN 27 CFSM 1.34 IN 18.21
WTR YR 1981 TOTAL 32053 MEAN 87.8 MAX 995 MIN 15 CFSM 1.15 IN 15.67

03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA

LOCATION.--Lat 36°39'06", long 81°50'39", Washington County, Hydrologic Unit 06010102, on right bank 500 ft (152 m) upstream from bridge on U.S. Highway 58, 0.7 mi (1.1 km) downstream from Laurel Creek, 3.2 mi (5.1 km) northwest of Damascus, 4.9 mi (7.9 km) upstream from Middle Fork, and at mile 77.2 (124.2 km).

DRAINAGE AREA.--301 mi^2 (780 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306. Published as "at Vestal" prior to October 1978.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1932-33(M).

GAGE.--Water-stage recorder. Datum of gage is 1,792.30 ft (546.293 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some diurnal fluctuation caused by powerplant above station. Tennessee Valley Authority gage-height radio transmitter at station, receiver and recorder at Kingsport, TN.

AVERAGE DISCHARGE.--50 years, 479 ft^3/s (13.57 m^3/s), 21.61 in/yr (549 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,000 ft^3/s (623 m^3/s) Apr. 5, 1977, gage height, 17.11 ft (5.215 m), from rating curve extended above 10,000 ft^3/s (280 m^3/s) on basis of slope-area measurement of peak flow; minimum, 30 ft^3/s (0.85 m^3/s) Oct. 14, 1941, Dec. 24, 1943, gage height, 2.16 ft (0.658 m); minimum daily, 60 ft^3/s (1.70 m^3/s) Sept. 18, 1954, Sept. 26, 27, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,000 ft^3/s (85 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Apr. 20	1500	3640	103	7.81	2.380	May 28	2400	4100	116	8.23	2.509
May 21	0130	*5040	143	9.03	2.752	June 7	0700	3150	89.2	7.32	2.231

Minimum daily discharge, 65 ft^3/s (1.84 m^3/s) Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	179	221	176	226	450	662	405	1080	245	134	107
2	142	170	215	170	977	399	606	370	1310	215	132	121
3	147	162	221	156	774	363	518	333	1230	203	132	113
4	134	164	204	130	529	389	459	307	1010	201	125	297
5	133	163	199	90	415	906	548	289	1060	194	118	249
6	139	151	196	100	360	1240	548	280	1210	419	278	155
7	127	145	190	120	318	977	503	272	2800	353	230	139
8	120	142	184	130	313	745	459	256	1810	257	356	140
9	117	138	190	140	259	590	463	239	1260	224	266	181
10	112	136	234	120	254	493	437	232	963	206	208	138
11	110	129	220	80	778	431	399	398	799	196	179	116
12	106	125	211	70	915	386	377	364	639	203	180	109
13	102	125	208	80	725	359	361	325	573	210	161	104
14	102	123	201	110	567	358	405	299	614	187	142	101
15	103	136	194	130	470	313	739	369	482	208	133	173
16	102	156	190	135	422	336	701	341	424	193	189	492
17	102	152	187	80	453	319	748	324	387	224	199	256
18	116	218	176	65	585	298	1230	313	360	183	152	196
19	260	210	172	70	710	289	1260	482	328	185	136	169
20	165	191	157	90	1080	271	2540	2220	309	179	127	155
21	139	182	128	150	1070	265	2230	3610	294	182	119	141
22	133	173	110	156	845	258	1370	1700	279	172	114	130
23	126	172	130	149	845	260	1030	1080	265	155	111	122
24	118	223	160	142	881	261	1130	779	246	147	109	114
25	396	256	150	139	743	257	977	607	241	154	107	110
26	426	242	130	150	621	264	798	499	270	145	103	107
27	282	258	120	196	518	268	665	1350	228	135	99	105
28	251	263	130	236	454	263	564	3620	214	137	98	102
29	224	249	150	226	---	257	500	3280	204	239	94	99
30	204	232	188	228	---	461	455	1880	202	175	94	98
31	191	---	180	190	---	687	---	1340	---	144	102	---
TOTAL	5080	5365	5546	4204	17107	13413	23682	28163	21091	6270	4727	4639
MEAN	164	179	179	136	611	433	789	908	703	202	152	155
MAX	426	263	234	236	1080	1240	2540	3620	2800	419	356	492
MIN	102	123	110	65	226	257	361	232	202	135	94	98
CFSM	.55	.60	.60	.45	2.03	1.44	2.62	3.02	2.34	.67	.51	.52
IN.	.63	.66	.69	.52	2.11	1.66	2.93	3.48	2.61	.77	.58	.57

CAL YR 1980 TOTAL 158787 MEAN 434 MAX 4490 MIN 96 CFSM 1.44 IN 19.62
WTR YR 1981 TOTAL 139287 MEAN 382 MAX 3620 MIN 65 CFSM 1.27 IN 17.21

03473000 SOUTH FORK HOLSTON RIVER NEAR DAMASCUS, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1952, 1968 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1949 to September 1950, October 1967 to September 1973.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)
OCT												
02...	0945	140	180	8.0	16.0	<5	8.5	74	2	18	7.0	4.1
NOV												
13...	1215	125	166	7.6	5.0	<5	11.4	73	5	18	6.8	3.6
JAN												
06...	1430	100	178	8.0	.5	<5	13.8	80	10	20	7.3	3.4
FEB												
19...	1015	685	79	7.6	7.0	<5	10.8	28	6	6.5	2.8	1.9
APR												
01...	1015	639	78	7.6	11.0	<5	10.2	32	3	8.2	2.9	1.9
MAY												
11...	1145	559	109	7.6	14.0	<5	9.2	40	2	9.9	3.7	2.8
JUL												
24...	0830	145	210	7.3	21.0	<5	8.3	89	7	23	7.7	5.7

< Actual value is known to be less than the value shown.

DATE	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	IRON, DISSOLVED (UG/L AS FE)
OCT												
02...	1.6	72	8.6	2.8	.1	6.4	105	94	<.010	.36	<.010	10
NOV												
13...	1.8	68	7.1	2.9	.1	5.3	86	87	.010	--	<.010	20
JAN												
06...	1.4	70	6.2	4.0	.1	6.1	95	91	<.010	.46	.040	10
FEB												
19...	1.4	22	4.0	3.0	<.1	4.9	46	38	<.010	.61	<.010	30
APR												
01...	1.2	29	3.0	2.7	<.1	5.4	44	43	<.010	.36	<.010	20
MAY												
11...	1.3	38	6.7	2.9	<.1	5.1	61	55	<.010	.40	<.010	30
JUL												
24...	1.6	82	14	3.1	<.1	6.0	127	110	<.010	.50	<.010	20

< Actual value is known to be less than the value shown.

03474000 MIDDLE FORK HOLSTON RIVER AT SEVEN MILE FORD, VA

LOCATION.--Lat 36°48'26", long 81°37'20", Smyth County, Hydrologic Unit 06010102, on right bank at downstream side of bridge on U.S. Highway 11 at Seven Mile Ford, 0.3 mi (0.5 km) upstream from Meade Creek, 3.3 mi (5.3 km) downstream from Walker Creek, and at mile 32.1 (51.6 km).

DRAINAGE AREA.--132 mi² (342 km²).

PERIOD OF RECORD.--July 1942 to December 1981 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

REVISED RECORDS.--WSP 973: 1942(m). WSP 1306: 1947(M).

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,960.00 ft (597.408 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Prior to April 1977, some diurnal fluctuation at low flow caused by mill 9 mi (14 km) above station. Since May 1936, flow occasionally regulated by the filling or draining of Hungry Mother Lake on Hungry Mother Creek, capacity, about 1,600 acre-ft (1.97 hm³). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--39 years, 167 ft³/s (4.729 m³/s), 17.18 in/yr (436 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,500 ft³/s (411 m³/s) Nov. 6, 1977; maximum gage height, 10.75 ft (3.277 m) Jan. 29, 1957; minimum discharge, 9 ft³/s (0.25 m³/s) Sept. 26, 1944; minimum daily, 20 ft³/s (0.57 m³/s) Sept. 26, 1944, Aug. 2, 1964.

EXTREMES FOR CURRENT PERIOD.--Water year 1981: Maximum discharge, 2,200 ft³/s (62.3 m³/s) at 0230 hours June 5, gage height, 3.67 ft (1.119 m), no other peak above base of 2,000 ft³/s (57 m³/s); minimum daily, 22 ft³/s (0.62 m³/s) Jan. 18.

October to December 1981: Maximum discharge during period, 534 ft³/s (15.1 m³/s) Dec. 23, gage height, 2.24 ft (0.683 m), no peak above base of 2,000 ft³/s (57 m³/s); minimum, 36 ft³/s (1.02 m³/s) part of each day Oct. 14-18, 20-23, gage height, 1.09 ft (0.332 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	63	56	76	56	58	195	181	106	291	97	51	41
2	58	55	76	53	287	144	161	96	412	83	50	40
3	56	53	78	52	186	133	142	88	963	79	51	45
4	56	57	76	45	122	147	126	83	405	78	50	126
5	53	56	76	39	103	296	141	79	1170	75	48	83
6	52	53	72	35	88	296	142	76	586	116	76	56
7	50	51	71	45	79	206	129	75	673	99	65	61
8	48	51	70	48	81	161	119	70	579	81	103	56
9	47	56	72	45	70	136	126	66	403	73	89	53
10	44	53	80	44	70	119	125	65	306	69	66	47
11	45	50	86	26	256	111	120	298	271	66	60	44
12	44	49	80	26	276	100	115	227	215	64	58	43
13	44	47	76	25	200	95	111	156	352	62	56	41
14	44	47	74	40	150	92	112	123	310	77	51	40
15	44	53	72	49	129	83	135	190	230	83	49	103
16	44	56	71	35	116	88	121	135	186	87	53	182
17	44	55	70	25	122	86	129	119	161	81	53	98
18	52	100	70	22	143	83	187	111	146	67	50	69
19	95	90	66	25	157	82	186	486	135	86	46	59
20	63	74	50	40	486	78	477	1190	125	68	45	53
21	56	68	44	56	366	75	498	1050	117	65	44	50
22	58	61	35	59	238	76	305	488	110	66	44	47
23	49	59	45	56	260	78	236	306	102	59	43	45
24	47	76	54	55	291	85	219	226	95	57	42	44
25	165	103	56	53	239	101	179	178	105	56	42	47
26	146	82	48	56	201	104	155	150	102	56	41	42
27	90	82	45	56	175	108	139	579	102	53	41	41
28	76	88	51	63	161	101	125	1480	90	56	41	40
29	70	86	53	61	---	96	116	987	83	72	40	40
30	63	88	58	61	---	151	112	533	86	68	40	39
31	58	---	56	52	---	220	---	363	---	53	40	---
TOTAL	1913	1957	2011	1385	5088	3880	5167	10037	8568	2236	1704	1770
MEAN	61.7	65.2	64.9	44.7	182	125	172	324	286	72.1	55.0	59.0
MAX	165	103	86	63	486	296	498	1480	1170	116	103	182
MIN	44	47	35	22	58	76	111	65	83	53	40	39
CFSM	.47	.49	.49	.34	1.38	.95	1.30	2.46	2.17	.55	.42	.45
IN.	.54	.55	.57	.39	1.43	1.09	1.46	2.83	2.41	.63	.48	.50

CAL YR 1980 TOTAL 52817 MEAN 144 MAX 1400 MIN 35 CFSM 1.09 IN 14.88
WTR YR 1981 TOTAL 45716 MEAN 125 MAX 1480 MIN 22 CFSM .95 IN 12.88

03474000 MIDDLE FORK HOLSTON RIVER AT SEVEN MILE FORD, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER TO DECEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	39	61	54									
2	58	61	60									
3	47	61	56									
4	42	60	55									
5	41	61	55									
6	41	62	51									
7	40	59	50									
8	39	59	50									
9	39	58	48									
10	39	59	46									
11	39	57	45									
12	39	57	46									
13	39	57	45									
14	38	44	56									
15	37	43	81									
16	37	43	98									
17	37	45	77									
18	37	43	73									
19	39	43	61									
20	37	46	53									
21	37	45	55									
22	37	43	87									
23	47	43	292									
24	50	52	291									
25	45	53	169									
26	53	50	125									
27	101	52	110									
28	85	53	99									
29	69	50	94									
30	65	48	85									
31	62	---	88									
TOTAL	1455	1568	2655									
MEAN	46.9	52.3	85.6									
MAX	101	62	292									
MIN	37	43	45									
CFSM	.36	.40	.65									
IN.	.41	.44	.75									

CAL YR 1981 TOTAL 45513 MEAN 125 MAX 1480 MIN 22 CFSM .95 IN 12.83

03475000 MIDDLE FORK HOLSTON RIVER NEAR MEADOWVIEW, VA

LOCATION.--Lat 36°42'47", long 81°49'08", Washington County, Hydrologic Unit 06010102, on left bank 48 ft (15 m) downstream from bridge on State Highway 803, 0.9 mi (1.4 km) upstream from Cedar Creek, 4.1 mi (6.6 km) southeast of Meadowview, and at mile 13.2 (21.2 km).

DRAINAGE AREA.--211 mi^2 (546 km^2).

PERIOD OF RECORD.--October 1931 to September 1953, May 1976 to current year. Monthly discharge only for October 1931, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1276: 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,820.22 ft (554.803 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Prior to 1954, flow regulated by powerplant 0.9 mi (1.4 km) above station. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--27 years, 241 ft^3/s (6.825 m^3/s), 15.51 in/yr (394 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft^3/s (354 m^3/s) Nov. 7, 1977, gage height, 13.41 ft (4.087 m); minimum, 6 ft^3/s (0.17 m^3/s) Nov. 10, 1933, Dec. 4, 1936, Jan. 21, 22, Feb. 1, 1940, Jan. 8, 1942, Oct. 15, 16, 31, 1943; minimum daily, 7 ft^3/s (0.20 m^3/s) Nov. 19, 1950.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 29, 1957, reached a stage of 11.8 ft (3.60 m), from floodmark, discharge, 10,000 ft^3/s (283 m^3/s), and flood of Dec. 10, 1972, reached a stage of 11.0 ft (3.35 m), from floodmark, discharge, 8,540 ft^3/s (242 m^3/s), from information by Tennessee Valley Authority. Flood of Mar. 30, 1975, reached a stage of 10.37 ft (3.161 m), discharge, 7,410 ft^3/s (210 m^3/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft^3/s (57 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
May 21	0600	2250	63.7	5.97	1.820	June 5	0930	*2680	75.9	6.53	1.990
May 28	1630	2640	74.8	6.47	1.972						

Minimum daily discharge, 34 ft^3/s (0.96 m^3/s) Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90	92	123	92	83	261	273	168	529	162	91	71
2	90	88	120	89	429	237	257	153	599	150	88	69
3	88	85	125	85	431	218	219	141	945	138	88	69
4	85	86	121	70	235	219	199	132	714	135	88	181
5	82	90	118	50	207	454	215	127	1720	135	86	212
6	80	87	117	60	165	563	230	121	1050	227	88	121
7	79	83	114	66	143	415	211	118	1080	209	110	103
8	78	82	111	70	139	307	196	113	988	156	248	108
9	78	80	113	79	129	251	196	108	754	135	172	103
10	78	80	131	64	119	219	214	103	599	127	118	93
11	78	80	137	40	249	200	201	220	519	121	103	86
12	77	78	130	37	470	184	191	345	419	121	113	84
13	75	75	124	39	349	170	185	220	470	116	98	84
14	72	75	119	60	257	166	177	178	599	108	93	82
15	70	77	114	71	211	151	210	191	419	135	88	91
16	69	84	113	68	192	148	201	191	340	121	88	360
17	71	88	110	40	192	151	203	172	287	141	88	201
18	74	136	105	34	222	143	295	159	256	118	88	141
19	92	157	103	40	234	143	324	404	235	118	86	116
20	116	127	92	60	686	138	555	1750	224	121	84	103
21	93	109	74	78	706	132	825	1820	209	108	82	95
22	85	99	60	93	466	127	514	864	198	108	80	91
23	83	94	70	89	428	128	380	555	184	103	80	86
24	82	111	81	86	541	137	345	404	172	95	78	84
25	136	159	98	82	445	144	282	310	165	98	75	84
26	312	152	78	80	362	161	243	260	239	95	75	82
27	163	144	74	82	304	161	216	589	187	91	73	82
28	128	142	81	88	271	160	198	2400	162	93	73	80
29	115	136	81	90	---	148	181	1600	150	103	71	79
30	105	130	87	95	---	169	175	915	144	108	71	77
31	96	---	95	85	---	325	---	675	---	95	71	---
TOTAL	3020	3104	3219	2162	8665	6530	8111	15506	14556	3891	2935	3318
MEAN	97.4	103	104	69.7	309	211	270	500	485	126	94.7	111
MAX	312	159	137	95	706	563	825	2400	1720	227	248	360
MIN	69	75	60	34	83	127	175	103	144	91	71	69
CFSM	.46	.49	.49	.33	1.46	1.00	1.28	2.37	2.30	.60	.45	.53
IN.	.53	.55	.57	.38	1.53	1.15	1.43	2.73	2.57	.69	.52	.58

CAL YR 1980 TOTAL 84477 MEAN 231 MAX 2240 MIN 60 CFSM 1.10 IN 14.89
WTR YR 1981 TOTAL 75017 MEAN 206 MAX 2400 MIN 34 CFSM .98 IN 13.23

03478400 BEAVER CREEK AT BRISTOL, VA

LOCATION.--Lat 36°37'54", long 82°08'02", Bristol City, Hydrologic Unit 06010102, on right bank 50 ft (15 m) upstream from bridge on State Highway 1405, 75 ft (23 m) downstream from Goose Creek, 0.9 mi (1.4 km) downstream from Clear Creek, 3.7 mi (6.0 km) northeast of Bristol, VA post office, and at mile 20.6 (33.1 km).

DRAINAGE AREA.--27.7 mi² (71.7 km²).

PERIOD OF RECORD.--July 1957 to current year. Published as "near Bristol" prior to October 1974.

GAGE.--Water-stage recorder. Datum of gage is 1,780.98 ft (542.843 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Small diurnal fluctuation at low flow caused by withdrawal of water, which is returned to stream 600 ft (183 m) above station, for car-washing operation. Since September 1965, some regulation at high flow by flood-control reservoirs, capacity, 7,600 acre-ft (9.37 hm³). Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--24 years, 35.4 ft³/s (1.003 m³/s), 17.35 in/yr (441 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,600 ft³/s (45.3 m³/s) Oct. 2, 1977, gage height, 9.94 ft (3.030 m), from rating curve extended above 390 ft³/s (11 m³/s) on basis of slope-area measurement of peak flow; minimum, 3.4 ft³/s (0.096 m³/s) Dec. 30, 1963; minimum daily, 7.4 ft³/s (0.21 m³/s) Sept. 28, 29, Oct. 5, 15, 18, 19, 23, 24, 1969.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1936 reached a stage of about 12 ft (3.7 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 509 ft³/s (14.4 m³/s) June 6, gage height, 6.88 ft (2.097 m); minimum, 7.1 ft³/s (0.20 m³/s) Jan. 5, gage height, 2.60 ft (0.792 m), result of freezeup; minimum daily, 8.0 ft³/s (0.23 m³/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	14	14	14	11	22	17	28	57	44	30	23
2	14	13	14	13	42	20	17	27	60	36	30	23
3	14	16	13	13	23	20	17	27	57	32	30	24
4	13	17	13	12	18	25	16	25	59	30	27	123
5	13	16	13	8.0	16	32	24	25	59	38	26	48
6	13	15	13	10	15	30	19	24	140	62	34	31
7	12	14	12	12	14	27	17	23	159	42	30	27
8	12	14	13	12	13	25	17	23	94	34	37	27
9	13	13	14	11	12	23	18	22	79	32	29	25
10	13	13	14	10	14	22	16	22	70	30	27	22
11	12	16	13	9.0	20	22	16	27	64	28	26	20
12	12	29	13	8.5	16	21	15	24	58	27	27	20
13	13	44	13	9.5	15	20	15	22	55	27	26	19
14	12	37	12	12	14	20	16	22	53	26	25	18
15	11	27	13	11	13	19	18	25	49	29	25	47
16	11	25	13	9.4	12	20	15	22	47	46	39	63
17	13	38	12	8.9	12	19	21	20	45	39	32	41
18	25	45	11	8.8	14	18	38	20	44	32	29	33
19	20	18	11	8.7	16	17	31	47	44	31	27	30
20	17	14	10	9.2	25	17	51	71	44	29	27	28
21	16	13	9.0	16	24	17	42	64	44	32	26	27
22	15	12	10	13	24	16	37	48	43	32	27	26
23	14	13	12	12	33	17	37	40	42	30	26	24
24	16	21	16	11	31	16	40	37	41	30	27	22
25	26	16	14	10	28	16	35	35	40	32	26	22
26	19	15	13	9.5	25	15	33	34	40	30	25	22
27	17	15	12	9.6	23	14	32	66	38	31	25	22
28	17	15	11	10	22	14	33	81	37	34	25	21
29	16	14	12	11	---	15	30	69	36	36	24	20
30	16	14	15	11	---	19	29	59	37	32	23	21
31	16	---	14	10	---	16	---	57	---	30	25	---
TOTAL	465	586	392.0	333.1	545	614	762	1136	1735	1043	862	919
MEAN	15.0	19.5	12.6	10.7	19.5	19.8	25.4	36.6	57.8	33.6	27.8	30.6
MAX	26	45	16	16	42	32	51	81	159	62	39	123
MIN	11	12	9.0	8.0	11	14	15	20	36	26	23	18
CFSM	.54	.70	.46	.39	.70	.72	.92	1.32	2.09	1.21	1.00	1.11
IN.	.62	.79	.53	.45	.73	.82	1.02	1.53	2.33	1.40	1.16	1.23

CAL YR 1980 TOTAL 11395.0 MEAN 31.1 MAX 188 MIN 9.0 CFSM 1.12 IN 15.30
WTR YR 1981 TOTAL 9392.1 MEAN 25.7 MAX 159 MIN 8.0 CFSM .93 IN 12.61

03488000 NORTH FORK HOLSTON RIVER NEAR SALTVILLE, VA

LOCATION.--Lat 36°53'48", long 81°44'47", Smyth County, Hydrologic Unit 06010101, on right bank 0.5 mi (0.8 km) upstream from Cedar Branch bridge, 1.5 mi (2.4 km) northeast of Saltville, 7.8 mi (12.6 km) downstream from Laurel Creek, and at mile 85.0 (136.8 km).

DRAINAGE AREA.--222 mi^3 (575 km^2).

PERIOD OF RECORD.--June 1907 to December 1908 (published as "at Saltville"), October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 758: Drainage area. WSP 1113: 1944-47. WSP 1306: 1907(M), 1921-22(M), 1924-30(M), 1932-34(M), drainage area at site used 1907-8. WSP 1726: 1947, monthly and yearly runoff.

GAGE.--Water-stage recorder. Datum of gage is 1,703.53 ft (519.236 m) National Geodetic Vertical Datum of 1929. June 11, 1907, to Nov. 12, 1908, nonrecording gage on highway bridge 2.1 mi (3.4 km) downstream at different datum. Nov. 2, 1920, to May 23, 1934, nonrecording gage on highway bridge 0.5 mi (0.8 km) downstream at datum 7.74 ft (2.359 m) lower.

REMARKS.--Records good. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--62 years, 302 ft^3/s (8.553 m^3/s), 18.47 in/yr (469 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,500 ft^3/s (467 m^3/s) Jan. 29, 1957, gage height, 13.20 ft (4.023 m), from rating curve extended above 13,000 ft^3/s (370 m^3/s) on basis of slope-area measurement of peak flow; maximum gage height, 13.57 ft (4.136 m) Nov. 6, 1977; minimum discharge, 1.0 ft^3/s (0.028 m^3/s) Oct. 15, 16, 1947, gage height, 0.13 ft (0.040 m), flow retarded by mine cave-in; minimum daily, 2.0 ft^3/s (0.057 m^3/s) Oct. 15, 1947.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,540 ft^3/s (157 m^3/s) at 0330 hours May 28, gage height, 7.66 ft (2.335 m), no other peak above base of 3,000 ft^3/s (85 m^3/s); minimum, 18 ft^3/s (0.51 m^3/s) Jan. 18, gage height, 0.28 ft (0.085 m), result of freezeup; minimum daily, 19 ft^3/s (0.54 m^3/s) Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	49	70	64	89	216	302	212	570	99	49	35
2	43	47	66	62	295	191	307	183	575	95	48	36
3	43	46	65	55	325	165	273	160	630	84	48	41
4	42	49	66	50	190	162	249	144	505	81	48	132
5	41	51	64	35	192	570	266	132	900	82	46	219
6	41	50	61	40	180	802	303	124	735	117	55	117
7	40	49	59	52	136	585	278	118	1210	119	62	123
8	38	47	58	56	116	417	253	110	1090	102	96	96
9	38	45	62	50	85	318	245	99	735	85	114	73
10	37	46	79	45	99	260	279	93	541	76	73	63
11	37	44	100	26	244	224	265	194	498	72	60	55
12	35	43	89	25	423	197	250	359	375	67	56	50
13	34	41	80	30	341	172	229	262	383	64	66	46
14	34	41	74	45	261	163	250	213	377	74	58	44
15	35	43	68	50	202	145	267	229	299	161	50	63
16	35	47	65	40	177	146	255	259	247	115	54	271
17	36	52	63	20	199	188	264	225	208	103	57	225
18	39	89	59	19	306	180	620	201	185	89	50	138
19	46	124	56	25	331	178	575	570	164	83	45	97
20	48	87	53	45	703	169	980	1710	149	75	43	79
21	47	69	48	67	687	156	1120	1550	138	73	40	70
22	44	61	40	75	456	146	687	877	127	71	39	63
23	43	57	53	74	423	154	512	565	115	63	38	57
24	40	87	57	66	570	170	522	409	102	58	37	52
25	77	143	72	59	455	194	493	313	111	56	36	49
26	145	119	60	63	347	236	416	253	187	54	35	47
27	94	98	50	68	276	238	343	1400	131	58	35	46
28	69	90	62	91	232	234	287	4860	100	53	34	43
29	59	83	62	100	---	211	251	2740	89	67	33	42
30	55	76	66	96	---	226	231	1300	84	63	33	41
31	52	---	67	74	---	310	---	802	---	55	34	---
TOTAL	1508	1973	1994	1666	8340	7723	11572	20666	11560	2514	1572	2513
MEAN	48.6	65.8	64.3	53.7	298	249	386	667	385	81.1	50.7	83.8
MAX	145	143	100	100	703	802	1120	4860	1210	161	114	271
MIN	34	41	40	19	85	145	229	93	84	53	33	35
CFSM	.22	.30	.29	.24	1.34	1.12	1.74	3.01	1.73	.37	.23	.38
IN.	.25	.33	.33	.28	1.40	1.29	1.94	3.46	1.94	.42	.26	.42

CAL YR 1980 TOTAL 96217 MEAN 263 MAX 3480 MIN 34 CFSM 1.19 IN 16.12
WTR YR 1981 TOTAL 73601 MEAN 202 MAX 4860 MIN 19 CFSM .91 IN 12.33

03488445 BRUMLEY CREEK NEAR HANSONVILLE, VA

LOCATION.--Lat 36°51'21", long 82°02'43", Washington County, Hydrologic Unit 06010101, on left bank 1.0 mi (1.6 km) upstream from Little Brumley Creek, 1.1 mi (1.8 km) downstream from Shovel Hollow Branch, 6.1 mi (9.8 km) northeast of Hansonville, and at mile 8.7 (14.0 km).

DRAINAGE AREA.--4.29 mi² (11.11 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1979 to December 1981 (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 3,371.95 ft (1,027.770 m) National Geodetic Vertical Datum of 1929 (Appalachian Power Co. bench mark).

REMARKS.--Records good except those for periods of doubtful or no gage-height record, Nov. 26 to Jan. 27, Feb. 2 to Mar. 3, and Aug. 7 to Oct. 18, which are fair. Some regulation at high flow by Hidden Valley Lake 1.7 mi (2.7 km) upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 107 ft³/s (3.03 m³/s) Mar. 21, 1980, gage height, 2.31 ft (0.704 m), from rating curve extended above 30 ft³/s (0.85 m³/s); minimum daily, 0.07 ft³/s (0.002 m³/s) Oct. 17, 1980.

EXTREMES FOR CURRENT PERIOD.--Water year 1981: Maximum discharge, 73 ft³/s (2.07 m³/s) May 20, gage height, 2.15 ft (0.655 m); minimum daily, 0.07 ft³/s (0.002 m³/s) Oct. 17.

October to December 1981: Maximum daily discharge during period, 25 ft³/s (0.71 m³/s) Dec. 22; minimum daily, 0.65 ft³/s (0.018 m³/s) Oct. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.13	.49	4.0	2.4	42	10	9.8	6.2	18	.63	1.1	.20
2	.12	.42	3.8	2.2	22	9.0	11	5.2	26	.57	.20	.19
3	.26	.39	3.5	2.0	14	8.0	9.9	4.3	33	.40	.18	.21
4	.23	.39	3.3	1.5	12	8.1	8.6	4.0	26	.33	.28	7.0
5	.22	.36	3.2	1.2	10	16	13	4.0	24	.42	1.4	4.5
6	.21	.36	3.0	2.4	8.0	19	14	3.7	22	9.3	3.1	2.7
7	.20	.36	2.8	2.8	7.0	15	12	3.4	28	8.1	3.5	3.0
8	.18	.34	2.6	2.0	6.0	12	9.8	3.2	26	6.2	13	2.8
9	.16	.39	2.5	1.6	5.4	9.1	9.9	2.7	22	4.8	8.0	2.7
10	.14	.39	4.0	1.4	4.5	8.0	11	2.7	16	3.6	5.0	2.4
11	.12	.36	3.7	1.1	15	6.9	11	6.5	11	2.6	3.5	2.0
12	.11	.38	3.5	1.0	30	6.3	10	8.4	8.6	2.3	3.0	1.7
13	.10	.35	3.3	1.1	18	5.6	9.0	8.7	7.0	2.1	2.7	1.4
14	.09	.32	3.0	1.3	12	4.9	8.2	8.7	5.7	1.4	2.0	1.2
15	.08	.30	2.7	1.2	10	4.1	8.7	10	5.3	1.4	1.6	3.0
16	.08	.36	2.5	1.2	8.0	4.0	7.6	10	3.8	.98	1.5	22
17	.07	.79	2.3	1.1	13	4.0	8.7	9.2	3.2	1.4	1.4	15
18	.09	6.0	2.2	.80	25	3.8	14	8.3	2.9	3.2	1.2	9.0
19	.39	6.4	2.2	.90	30	3.5	16	28	2.9	12	.90	6.0
20	.46	3.2	1.9	1.1	40	4.2	25	52	2.5	8.1	.75	4.0
21	.25	2.0	1.4	2.2	30	3.7	28	38	1.6	5.1	.65	3.0
22	.21	1.6	1.5	2.0	18	3.2	20	25	1.4	3.8	.55	2.5
23	.15	1.3	1.6	1.7	19	3.0	17	18	1.1	2.4	.46	2.0
24	.11	9.2	1.9	1.5	20	3.3	24	13	.72	1.6	.44	1.8
25	2.0	12	2.2	1.4	16	3.8	21	10	.87	1.3	.43	1.6
26	2.3	8.0	2.0	1.7	14	4.7	17	8.4	1.7	1.1	.40	1.4
27	.58	6.0	1.6	5.0	12	5.7	14	17	2.5	.79	.32	1.3
28	.56	5.5	2.0	14	10	6.0	9.7	30	1.7	1.2	.29	1.2
29	2.4	5.2	2.2	13	---	6.0	8.4	39	.43	1.5	.25	1.1
30	1.0	5.0	2.5	11	---	8.3	7.1	30	.30	1.7	.23	1.0
31	.74	---	2.6	29	---	9.0	---	22	---	1.7	.21	---
TOTAL	13.74	78.15	81.5	112.80	470.9	218.2	393.4	439.6	306.22	92.02	58.54	107.90
MEAN	.44	2.61	2.63	3.64	16.8	7.04	13.1	14.2	10.2	2.97	1.89	3.60
MAX	2.4	12	4.0	29	42	19	28	52	33	12	13	22
MIN	.07	.30	1.4	.80	4.5	3.0	7.1	2.7	.30	.33	.18	.19
CFSM	.10	.61	.61	.85	3.92	1.64	3.05	3.31	2.38	.69	.44	.84
IN.	.12	.68	.71	.98	4.08	1.89	3.41	3.81	2.65	.80	.51	.94

CAL YR 1980 TOTAL 2696.93 MEAN 7.37 MAX 64 MIN .07 CFSM 1.72 IN 23.38
WTR YR 1981 TOTAL 2372.97 MEAN 6.50 MAX 52 MIN .07 CFSM 1.52 IN 20.57

03488445 BRUMLEY CREEK NEAR HANSONVILLE, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER TO DECEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.65	9.2	12									
2	1.5	8.1	13									
3	1.2	6.9	13									
4	1.1	6.1	12									
5	1.0	5.8	11									
6	1.0	5.6	9.0									
7	1.1	4.6	8.7									
8	1.1	4.1	8.7									
9	1.1	4.0	8.5									
10	1.1	3.8	7.9									
11	1.0	3.6	7.8									
12	1.0	3.3	7.4									
13	1.0	3.2	6.4									
14	1.0	3.1	6.9									
15	.98	3.0	15									
16	.95	2.9	11									
17	1.0	2.7	8.0									
18	1.2	2.5	7.0									
19	1.7	2.4	4.0									
20	1.9	2.5	5.0									
21	1.8	2.8	8.0									
22	2.0	2.7	25									
23	4.3	2.6	20									
24	5.3	2.5	11									
25	3.8	2.6	9.0									
26	5.5	2.9	8.0									
27	10	5.9	7.0									
28	13	11	6.5									
29	20	14	6.0									
30	13	13	6.5									
31	10	---	17									
TOTAL	111.28	147.4	306.3									
MEAN	3.59	4.91	9.88									
MAX	20	14	25									
MIN	.65	2.4	4.0									
CFSM	.84	1.15	2.30									
IN.	.96	1.28	2.66									

CAL YR 1981 TOTAL 2764.56 MEAN 7.57 MAX 52 MIN .18 CFSM 1.77 IN 23.97

03488445 BRUMLEY CREEK NEAR HANSONVILLE, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORDS.--
WATER TEMPERATURE: November 1979 to December 1981 (discontinued).

INSTRUMENTATION.--Temperature recorder since Nov. 7, 1979.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	5.5	5.0	5.0						
2	13.5	12.5	13.5	5.0	5.0	5.0						
3	12.5	10.5	11.0	5.0	4.5	4.5						
4	10.5	9.0	9.5	6.0	4.5	5.5						
5	9.0	8.5	8.5	6.0	6.0	6.0						
6	8.5	7.5	7.5	6.0	4.5	5.0						
7	7.5	6.5	7.0	5.0	4.5	4.5						
8	9.0	7.0	8.0	6.5	5.0	6.0						
9	10.5	9.0	9.5	8.5	6.5	7.5						
10	11.5	10.5	11.0	8.5	7.0	8.0						
11	11.5	11.0	11.5	7.0	4.0	5.0						
12	11.0	8.5	9.5	4.0	3.0	3.0						
13	8.5	7.0	7.0	3.0	2.5	2.5						
14	7.0	6.5	6.5	5.0	3.0	4.0						
15	8.0	7.0	7.5	5.5	5.0	5.5						
16	8.5	8.0	8.0	5.5	5.0	5.5						
17	10.0	8.5	9.0	5.5	5.0	5.0						
18	11.0	10.0	10.5	5.5	4.0	5.0						
19	11.0	11.0	11.0	4.0	2.0	3.0						
20	11.0	8.5	9.5	2.0	2.0	2.0						
21	8.5	8.0	8.0	2.0	2.0	2.0						
22	8.0	7.5	7.5	2.0	2.0	2.0						
23	7.5	7.5	7.5	5.0	2.0	3.5						
24	7.5	7.0	7.0	---	---	---						
25	7.0	6.5	7.0	---	---	---						
26	6.5	5.0	5.5	---	---	---						
27	5.0	4.5	5.0	---	---	---						
28	7.0	5.0	6.0	---	---	---						
29	7.0	7.0	7.0	---	---	---						
30	7.0	7.0	7.0	---	---	---						
31	7.0	5.5	6.0	---	---	---						
MONTH	13.5	4.5	8.5	8.5	2.0	4.5						

03488445 BRUMLEY CREEK NEAR HANSONVILLE, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1							---	---	---	12.5	11.0	11.5
2							---	---	---	11.0	9.0	10.0
3							8.5	7.0	8.0	12.0	7.5	10.0
4							9.5	8.5	9.0	13.5	8.5	11.0
5							9.5	9.0	9.5	13.5	10.5	12.5
6							9.0	8.0	8.0	13.0	11.5	12.5
7							8.0	7.5	7.5	12.5	10.5	11.0
8							9.5	8.0	8.5	12.5	8.5	10.5
9							9.5	9.5	9.5	13.5	9.5	12.0
10							10.0	9.5	10.0	13.5	12.0	13.0
11							11.5	10.5	10.5	13.0	10.0	11.5
12							11.5	11.5	11.5	10.0	9.0	9.5
13							13.0	11.5	12.5	12.5	8.5	10.5
14							13.0	13.0	13.0	13.5	10.0	12.0
15							13.0	11.5	12.0	12.5	10.5	11.0
16							12.5	10.5	11.5	11.5	10.0	10.5
17							10.5	10.0	10.5	12.5	10.0	11.5
18							11.5	10.0	10.5	14.0	11.5	12.5
19							11.5	9.0	10.5	13.0	11.5	12.0
20							11.0	9.0	10.0	12.0	11.5	12.0
21							11.5	8.5	10.0	12.5	11.0	12.0
22							12.5	9.5	11.0	13.5	11.0	12.0
23							11.5	10.5	11.5	14.5	11.5	13.0
24							10.5	8.5	9.5	15.5	12.5	14.0
25							10.5	8.5	9.5	15.5	13.5	14.5
26							12.0	9.0	10.5	15.5	14.0	14.5
27							13.5	10.5	12.0	15.0	13.0	13.5
28							14.5	10.5	12.5	13.0	12.5	12.5
29							13.0	12.0	12.5	14.0	12.5	13.0
30							13.5	11.5	12.5	15.5	13.5	14.5
31							---	---	---	15.5	14.5	15.0
MONTH							14.5	7.0	10.5	15.5	7.5	12.0

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	16.0	15.0	15.5	17.5	16.5	17.0	17.5	16.5	17.0	17.5	16.5	16.5
2	15.5	14.5	15.0	17.0	16.5	16.5	17.5	17.0	17.0	17.5	16.5	17.0
3	16.5	15.0	15.5	17.0	16.5	17.0	18.5	17.5	18.0	18.0	17.0	17.5
4	16.5	16.0	16.5	17.5	16.5	17.0	18.5	17.0	18.0	17.5	16.5	17.0
5	17.0	15.5	16.0	18.5	17.0	18.0	19.5	18.0	18.5	18.5	17.0	17.5
6	16.5	15.5	16.5	18.5	17.5	18.0	19.0	18.0	18.5	18.0	17.5	18.0
7	16.0	15.0	15.5	18.5	17.0	17.5	19.5	18.5	18.5	18.5	17.0	18.0
8	17.0	15.0	16.0	19.5	18.0	19.0	18.5	17.0	18.0	18.0	16.5	17.5
9	17.5	17.0	17.0	20.5	19.5	20.0	19.5	17.0	18.0	16.5	14.5	15.5
10	18.5	17.5	18.0	21.0	20.0	20.5	20.0	18.0	19.0	15.0	13.0	14.0
11	18.5	17.5	18.0	21.5	20.5	21.0	20.0	18.5	19.5	15.5	14.0	14.5
12	19.5	18.0	18.5	21.5	21.0	21.5	20.0	18.0	19.0	16.0	14.5	15.5
13	19.5	18.5	19.0	21.5	20.5	21.5	18.5	16.0	17.5	15.5	14.5	15.0
14	20.5	19.0	19.5	22.0	21.5	21.5	18.0	16.0	17.0	16.0	14.5	15.0
15	20.0	19.0	19.5	21.5	20.5	21.0	18.5	17.0	17.5	16.5	15.5	16.0
16	20.0	18.5	19.5	21.0	20.5	20.5	19.0	18.5	18.5	15.5	14.0	15.0
17	20.0	18.0	19.0	21.5	20.5	21.0	18.5	17.5	18.0	14.0	13.0	13.5
18	19.0	17.0	18.0	24.5	20.0	20.5	18.0	17.0	17.5	13.0	11.5	12.0
19	19.5	18.0	18.5	26.0	24.5	25.0	17.0	15.5	16.0	11.5	11.0	11.0
20	19.5	18.5	19.0	25.5	24.0	25.0	16.0	15.0	15.5	12.0	11.0	11.5
21	20.5	19.0	19.5	24.0	22.5	23.5	15.5	14.5	15.0	12.0	10.5	11.0
22	20.5	20.0	20.5	22.5	21.5	22.0	15.0	14.0	14.5	13.5	12.0	12.5
23	20.5	19.0	19.5	21.5	19.5	20.5	15.5	14.0	15.0	13.5	10.5	12.0
24	19.0	17.5	18.5	22.0	21.0	21.5	15.5	14.5	15.0	10.5	9.0	9.5
25	19.5	18.0	18.5	22.0	21.0	21.5	16.0	15.0	15.5	10.5	8.5	9.5
26	18.5	17.5	18.0	22.0	20.5	21.5	15.5	14.5	15.0	12.0	10.0	11.0
27	17.5	15.5	16.5	22.0	21.0	21.5	16.0	15.0	15.5	13.0	11.5	12.0
28	17.0	15.5	16.5	22.0	21.0	21.5	16.0	15.0	15.5	13.0	11.0	12.5
29	17.5	16.0	16.5	21.0	19.5	20.5	16.0	15.0	15.5	11.0	9.5	10.0
30	17.5	16.5	17.0	19.5	17.5	18.0	16.5	15.5	16.0	11.0	9.5	10.0
31	---	---	---	18.0	17.0	17.5	16.5	15.5	16.0	---	---	---
MONTH	20.5	14.5	17.5	26.0	16.5	20.5	20.0	14.0	17.0	18.5	8.5	14.0
YEAR	26.0	2.0	13.5									

03488445 BRUMLEY CREEK NEAR HANSONVILLE, VA--Continued

TEMPERATURE, WATER (DEG. C), OCTOBER TO DECEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER	
1	13.0	11.0	12.0	9.5	8.0	9.0	4.5	4.5	4.5
2	13.0	9.0	11.0	10.0	8.5	9.5	4.5	4.5	4.5
3	9.0	7.5	8.0	9.5	8.5	9.0	4.5	4.5	4.5
4	8.5	7.0	7.5	10.0	9.0	9.5	4.5	3.5	4.0
5	10.5	8.5	9.5	10.0	9.5	10.0	3.5	3.5	3.5
6	12.5	10.5	11.5	10.0	8.0	9.5	3.5	3.5	3.5
7	12.0	9.5	10.5	8.0	5.5	6.5	3.5	2.5	3.0
8	9.5	8.0	8.5	5.5	4.5	4.5	2.5	2.5	2.5
9	8.5	7.0	8.0	6.0	4.5	5.0	2.5	2.5	2.5
10	9.0	8.5	8.5	6.0	5.5	5.5	2.5	2.5	2.5
11	10.0	9.0	9.5	5.5	4.5	4.5	2.5	2.5	2.5
12	10.0	9.5	9.5	4.5	4.0	4.0	2.5	2.5	2.5
13	9.5	8.0	8.5	4.0	3.0	3.0	2.5	2.5	2.5
14	8.0	7.0	7.5	3.0	2.5	2.5	2.5	1.0	1.0
15	9.0	7.5	8.0	2.5	2.5	2.5	1.0	1.0	1.0
16	9.5	9.0	9.5	2.5	2.5	2.5	1.0	1.0	1.0
17	9.5	8.0	9.0	4.0	2.5	3.5	1.0	1.0	1.0
18	10.5	9.0	9.5	4.0	4.0	4.0	1.0	1.0	1.0
19	9.0	6.0	7.5	6.0	4.0	4.5	1.0	1.0	1.0
20	6.0	5.0	5.5	6.5	4.0	5.5	1.0	1.0	1.0
21	6.0	5.0	5.5	4.0	2.0	3.0	1.0	1.0	1.0
22	7.5	6.0	7.0	2.0	1.5	2.0	1.0	1.0	1.0
23	8.5	7.0	8.0	1.5	1.0	1.0	1.5	1.0	1.0
24	7.0	5.5	6.0	1.0	1.0	1.0	1.0	1.0	1.0
25	8.0	5.5	6.5	1.0	1.0	1.0	1.0	1.0	1.0
26	10.5	8.0	9.5	2.0	1.0	1.5	1.0	1.0	1.0
27	10.5	10.0	10.0	5.0	2.0	4.0	1.0	1.0	1.0
28	10.0	9.5	10.0	4.5	4.5	4.5	1.0	1.0	1.0
29	10.5	9.0	9.5	4.5	4.5	4.5	1.0	1.0	1.0
30	10.0	9.0	9.5	4.5	4.5	4.5	1.0	1.0	1.0
31	9.5	8.0	9.0	---	---	---	1.0	1.0	1.0
MONTH	13.0	5.0	8.5	10.0	1.0	4.5	4.5	1.0	2.0

03488450 BRUMLEY CREEK AT BRUMLEY GAP, VA

LOCATION.--Lat 36°47'30", long 82°01'10", Washington County, Hydrologic Unit 06010101, on left bank 20 ft (6 m) downstream from bridge on State Highway 611, 0.8 mi (1.3 km) southeast of Brumley Gap, 2.7 mi (4.3 km) downstream from Lee Creek, and at mile 0.2 (0.3 km).

DRAINAGE AREA.--21.1 mi^2 (54.6 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1979 to December 1981 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

GAGE.--Water-stage recorder. Datum of gage is 1,489.16 ft (453.896 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Some regulation at high flow by Hidden Valley Lake 10.1 mi (16.3 km) upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 760 ft^3/s (21.5 m^3/s) Mar. 21, 1980, gage height, 5.10 ft (1.554 m), from rating curve extended above 130 ft^3/s (3.7 m^3/s); minimum, 0.19 ft^3/s (0.005 m^3/s) Sept. 17, 1980, gage height, 0.68 ft (0.207 m).

EXTREMES FOR CURRENT PERIOD.--Water year 1981: Maximum discharge, 374 ft^3/s (10.6 m^3/s) at 0035 hours May 20, gage height, 3.94 ft (1.201 m), no other peak above base of 300 ft^3/s (8.5 m^3/s); minimum, 0.29 ft^3/s (0.008 m^3/s) Oct. 17, 18, gage height, 0.71 ft (0.216 m).

October to December 1981: Maximum discharge during period, 68 ft^3/s (1.93 m^3/s) Dec. 22, gage height, 2.24 ft (0.683 m), no peak above base of 300 ft^3/s (8.5 m^3/s); minimum, 4.1 ft^3/s (0.12 m^3/s) Oct. 1, gage height, 1.05 ft (0.320 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	2.9	17	12	32	39	34	30	80	8.8	2.2	.95
2	1.3	2.6	17	11	109	34	38	28	125	6.9	1.0	.90
3	1.2	2.3	17	10	69	29	35	22	151	4.9	.90	1.0
4	1.1	2.7	16	7.3	63	34	32	19	111	4.1	1.2	35
5	1.1	3.2	15	6.1	50	85	49	17	137	3.6	1.5	21
6	1.1	3.5	14	12	38	108	57	16	119	32	13	13
7	.91	3.0	13	14	35	82	53	15	187	29	14	16
8	.81	2.6	12	10	30	60	44	14	152	19	65	14
9	.71	2.3	12	9.3	26	45	46	12	101	14	37	13
10	.64	2.1	19	7.0	22	38	53	11	71	11	23	11
11	.56	1.9	18	5.5	143	31	51	20	52	18	16	9.3
12	.54	1.8	17	5.0	143	27	46	24	37	11	15	8.2
13	.43	1.7	16	5.6	88	24	41	23	30	9.8	13	6.9
14	.40	1.5	14	6.5	59	22	38	22	26	7.7	10	5.9
15	.40	1.6	13	6.9	47	20	43	28	20	6.4	8.0	18
16	.38	2.0	12	6.6	42	21	36	26	16	5.5	7.2	105
17	.33	3.0	11	5.6	86	20	41	23	14	5.5	6.9	62
18	.86	15	11	4.2	139	19	74	22	12	5.3	5.1	37
19	2.4	13	10	4.5	138	17	81	117	11	9.6	4.3	24
20	1.7	9.4	8.9	6.4	178	17	132	308	10	11	3.6	19
21	2.1	7.7	6.8	11	144	16	171	218	8.8	9.0	3.1	14
22	2.0	6.9	7.5	10	88	15	114	126	7.2	7.4	2.4	12
23	1.7	5.9	7.9	8.5	96	15	87	78	6.4	5.2	2.1	10
24	1.6	23	9.5	7.7	96	16	119	54	4.9	4.1	2.1	9.0
25	7.6	36	12	7.4	73	17	121	40	4.9	3.4	2.1	7.7
26	9.9	28	10	8.2	58	18	84	32	6.9	3.2	1.8	6.7
27	4.0	26	8.0	27	46	22	63	72	4.9	2.8	1.4	6.2
28	2.9	27	10	44	39	22	50	177	3.9	3.1	1.4	5.7
29	3.7	25	11	37	---	21	42	215	3.2	5.7	1.1	5.1
30	5.7	23	11	31	---	29	35	141	3.4	4.3	1.1	4.9
31	3.6	---	12	29	---	32	---	96	---	3.1	1.0	---
TOTAL	63.07	286.6	388.6	376.3	2177	995	1910	2046	1516.5	274.4	267.50	502.45
MEAN	2.03	9.55	12.5	12.1	77.8	32.1	63.7	66.0	50.6	8.85	8.63	16.7
MAX	9.9	36	19	44	178	108	171	308	187	32	65	105
MIN	.33	1.5	6.8	4.2	22	15	32	11	3.2	2.8	.90	.90
CFSM	.10	.45	.59	.57	3.69	1.52	3.02	3.13	2.40	.42	.41	.79
IN.	.11	.51	.69	.66	3.84	1.75	3.37	3.61	2.67	.48	.47	.89

CAL YR 1980 TOTAL 12324.31 MEAN 33.7 MAX 453 MIN .24 CFSM 1.60 IN 21.73
WTR YR 1981 TOTAL 10803.42 MEAN 29.6 MAX 308 MIN .33 CFSM 1.40 IN 19.05

03488450 BRUMLEY CREEK AT BRUMLEY GAP, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER TO DECEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.3	19	28									
2	4.7	17	31									
3	4.9	15	30									
4	4.9	14	27									
5	4.9	13	24									
6	4.9	13	20									
7	5.3	12	19									
8	5.3	11	18									
9	5.3	9.8	18									
10	5.3	9.8	18									
11	5.2	9.6	17									
12	4.9	9.0	17									
13	4.9	8.6	15									
14	4.9	8.2	23									
15	4.9	8.0	35									
16	4.9	7.8	25									
17	4.9	7.6	20									
18	4.9	7.8	16									
19	4.9	8.0	10									
20	5.0	8.3	13									
21	5.1	9.6	20									
22	5.1	9.6	60									
23	8.2	9.1	45									
24	14	9.2	25									
25	11	10	20									
26	17	10	18									
27	37	16	17									
28	40	31	16									
29	33	33	14									
30	26	30	15									
31	21	---	40									
TOTAL	316.6	384.0	714									
MEAN	10.2	12.8	23.0									
MAX	40	33	60									
MIN	4.3	7.6	10									
CFSM	.48	.61	1.09									
IN.	.56	.68	1.26									

CAL YR 1981 TOTAL 11479.75 MEAN 31.5 MAX 308 MIN .90 CFSM 1.49 IN 20.24

03488450 BRUMLEY CREEK AT BRUMLEY GAP, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORDS.--
WATER TEMPERATURES: September 1979 to December 1981 (discontinued).

INSTRUMENTATION.--Temperature recorder since Sept. 12, 1979.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 26.0°C Aug. 20, 1980; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR PERIOD OCTOBER 1980 TO DECEMBER 1981.--
WATER TEMPERATURES: Maximum recorded, 25.5°C July 27; minimum recorded, 0.0°C on many days during winter periods.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER			JANUARY	
1	19.5	15.5	17.0	10.5	6.0	8.0	4.5	1.5	3.0	1.5	1.0	1.5
2	18.5	15.5	17.0	10.5	6.0	8.0	4.5	3.0	3.5	1.0	.5	.5
3	17.0	14.0	15.0	10.0	5.5	8.0	4.0	2.5	3.0	.5	.5	.5
4	14.0	12.0	13.0	11.0	8.0	9.5	2.5	.5	1.5	.5	.5	.5
5	12.5	11.0	12.0	10.0	7.5	8.5	3.5	1.5	2.5	.0	.0	.0
6	13.5	9.5	11.0	9.0	5.5	7.0	4.5	2.0	3.0	.0	.0	.0
7	13.0	8.5	10.5	9.5	4.5	7.0	5.5	3.0	4.0	.0	.0	.0
8	14.5	10.0	12.0	13.0	7.5	10.0	6.5	3.5	5.0	.0	.0	.0
9	16.5	12.0	14.0	13.0	9.5	11.0	8.0	6.0	6.5	.0	.0	.0
10	18.0	13.0	15.0	13.0	9.0	10.5	8.0	6.0	7.5	.0	.0	.0
11	17.0	14.0	15.5	9.5	5.5	7.5	5.5	3.5	4.5	.0	.0	.0
12	14.5	11.5	13.0	8.0	3.5	5.5	4.0	2.0	3.0	.0	.0	.0
13	12.5	8.5	10.5	8.5	3.0	5.5	4.5	1.5	3.0	.0	.0	.0
14	13.0	7.5	10.0	7.5	4.0	5.5	4.0	2.0	2.5	.0	.0	.0
15	13.5	8.0	10.5	9.0	7.0	8.0	3.0	1.0	2.0	.0	.0	.0
16	14.0	8.5	11.5	10.5	8.0	9.0	3.5	3.0	3.5	.0	.0	.0
17	14.5	10.0	12.5	8.0	7.0	7.5	3.5	2.0	3.0	.0	.0	.0
18	14.5	13.5	14.0	8.0	5.0	7.0	2.0	.5	1.5	.0	.0	.0
19	17.0	13.5	15.0	5.5	4.5	5.0	3.0	1.5	2.5	.0	.0	.0
20	14.5	11.0	12.5	4.0	2.0	3.0	1.5	.5	.5	.0	.0	.0
21	14.0	9.0	11.0	3.5	1.5	2.5	.0	.0	.0	.0	.0	.0
22	14.0	8.5	11.0	3.5	1.0	2.5	.0	.0	.0	.0	.0	.0
23	12.5	9.0	10.5	5.5	3.5	4.5	.0	.0	.0	.0	.0	.0
24	13.0	9.0	11.0	7.5	5.5	6.5	.0	.0	.0	.0	.0	.0
25	11.5	6.5	10.0	7.0	4.5	6.5	.0	.0	.0	.0	.0	.0
26	9.0	7.0	8.0	4.5	2.5	3.5	.0	.0	.0	.5	.5	.5
27	9.0	6.5	8.0	5.0	4.0	4.5	.0	.0	.0	2.0	.5	1.5
28	12.5	8.5	10.5	5.0	3.5	4.5	.0	.0	.0	2.5	.5	1.5
29	11.5	10.0	10.5	3.5	3.0	3.0	1.5	.5	1.0	2.5	.5	1.5
30	11.5	9.5	10.0	4.0	1.5	3.0	2.0	1.5	1.5	1.5	.5	.5
31	11.0	7.5	9.5	---	---	---	2.0	1.5	1.5	.0	.0	.0
MONTH	19.5	6.5	12.0	13.0	1.0	6.5	8.0	.0	2.0	2.5	.0	.5

03488450 BRUMLEY CREEK AT BRUMLEY GAP, VA--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		FEBRUARY			MARCH			APRIL			MAY	
1	.0	.0	.0	9.5	7.0	8.0	12.0	9.0	10.0	15.0	12.0	13.5
2	.0	.0	.0	7.5	5.5	6.5	13.0	7.5	10.0	14.0	10.5	12.5
3	.0	.0	.0	6.5	3.5	5.0	13.0	7.0	10.0	14.5	8.0	11.5
4	.0	.0	.0	4.0	2.5	3.0	15.0	8.5	11.5	16.0	9.5	12.5
5	.0	.0	.0	6.0	4.0	5.0	13.0	10.0	12.0	16.5	11.5	14.0
6	.0	.0	.0	5.5	3.5	4.5	11.0	7.5	9.0	16.0	13.5	14.5
7	.0	.0	.0	5.0	2.5	4.0	11.5	5.5	8.0	15.5	12.5	14.0
8	1.0	.5	.5	5.5	1.5	3.0	13.0	6.5	9.5	15.5	10.5	13.0
9	.5	.5	.5	6.0	1.5	3.5	11.0	10.0	10.5	16.0	10.5	13.0
10	1.0	.5	.5	5.0	1.5	3.5	14.5	10.5	12.0	16.0	13.5	14.5
11	2.0	.5	1.0	6.0	3.0	4.5	16.5	11.5	13.5	15.5	12.5	14.0
12	.5	.5	.5	7.0	3.0	4.5	15.5	11.5	13.5	13.5	11.0	12.0
13	1.5	.5	1.0	8.0	2.5	5.0	18.0	12.0	15.0	15.0	9.5	12.0
14	3.5	.5	2.0	7.0	3.5	5.0	17.0	12.5	14.5	16.5	11.0	13.5
15	4.5	.5	2.5	7.0	1.0	4.0	15.5	10.0	12.5	14.5	11.5	13.0
16	5.5	2.0	4.0	6.5	3.5	5.5	15.0	9.0	12.0	14.0	10.5	12.0
17	5.5	4.5	5.0	6.5	1.0	4.0	13.0	11.5	11.5	15.0	11.0	12.5
18	7.0	4.5	5.5	7.5	4.0	5.5	15.5	12.0	13.5	16.0	12.5	14.0
19	6.5	6.0	6.0	5.0	2.5	3.5	14.5	10.5	12.5	15.0	12.5	14.0
20	7.0	5.5	6.0	2.0	.5	1.5	13.0	10.5	12.0	12.5	11.0	11.5
21	8.0	5.0	6.0	6.5	1.5	4.0	13.0	8.0	10.5	13.0	10.5	11.5
22	7.5	4.5	6.0	4.5	2.5	3.5	14.5	9.5	11.5	14.0	10.0	12.0
23	7.0	5.5	6.5	6.5	2.0	4.0	13.0	12.0	12.5	15.0	11.0	13.0
24	5.5	3.5	5.0	7.5	2.0	4.5	13.0	10.0	11.5	16.0	11.5	14.0
25	7.5	3.0	5.0	8.0	2.0	5.0	13.0	8.5	10.5	17.0	12.5	15.0
26	7.5	4.0	5.5	9.0	3.0	6.0	14.5	9.0	11.0	16.5	14.0	15.0
27	7.0	2.5	4.5	8.0	5.0	6.5	17.0	11.5	13.5	15.5	14.5	15.0
28	7.0	4.0	5.5	10.5	3.5	7.0	18.0	12.0	14.5	14.0	13.5	14.0
29	---	---	---	10.5	5.5	8.5	16.0	12.5	14.0	14.0	13.0	13.5
30	---	---	---	12.0	9.0	10.0	16.0	12.5	14.0	16.0	13.0	14.5
31	---	---	---	13.5	7.0	10.0	---	---	---	16.5	14.5	15.0
MONTH	8.0	.0	3.0	13.5	.5	5.0	18.0	5.5	12.0	17.0	8.0	13.5

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		JUNE			JULY			AUGUST			SEPTEMBER	
1	16.5	15.0	15.5	19.5	18.5	19.5	21.0	18.5	20.0	23.0	20.0	21.0
2	16.0	15.0	15.5	19.5	18.0	19.0	22.0	19.5	20.5	24.0	20.5	22.0
3	16.5	14.5	15.5	19.5	18.5	19.0	24.5	21.0	22.0	24.0	21.0	22.0
4	17.0	15.5	16.0	21.0	18.0	19.5	24.5	20.5	22.5	22.0	20.0	21.0
5	17.0	15.5	16.0	22.0	19.0	20.5	25.0	21.5	23.0	21.5	19.5	20.5
6	16.0	15.5	15.5	21.0	19.0	19.5	23.0	21.5	22.0	21.5	19.5	20.5
7	15.5	15.0	15.5	20.5	18.5	19.5	23.0	21.0	22.0	21.5	19.0	20.0
8	16.5	14.5	15.5	22.0	19.0	20.0	22.5	19.5	20.5	20.0	18.5	19.0
9	17.0	15.5	16.0	23.0	20.0	21.5	21.5	18.0	19.5	18.5	16.5	17.5
10	19.0	16.5	17.5	23.0	20.5	22.0	22.0	18.5	20.0	18.0	14.5	16.5
11	19.5	17.0	18.0	23.0	20.0	21.5	22.5	19.0	20.5	18.5	15.5	17.5
12	20.0	17.0	18.0	23.0	21.0	22.0	21.5	19.5	20.5	19.0	17.0	18.0
13	19.5	17.5	18.0	23.5	21.5	22.5	21.0	17.5	19.5	20.0	17.5	19.0
14	21.5	17.5	19.5	24.0	22.5	23.0	20.5	17.5	19.5	20.0	17.5	19.0
15	22.0	18.0	20.0	23.5	21.5	22.5	21.0	18.0	19.5	19.5	17.5	19.0
16	22.5	18.5	20.5	22.5	21.5	22.0	21.5	20.5	21.0	17.5	16.5	17.0
17	21.5	19.5	20.0	23.5	21.0	22.0	21.5	19.0	20.5	16.5	14.5	15.5
18	21.5	17.0	19.5	23.0	21.5	22.0	21.0	19.5	20.5	14.5	13.0	13.5
19	21.5	19.0	20.0	24.0	22.0	23.0	20.0	19.0	19.5	14.0	12.5	13.0
20	21.0	19.0	20.0	23.0	21.5	22.5	21.5	18.5	19.5	15.0	11.5	13.0
21	22.5	19.5	21.0	23.0	21.0	22.0	19.5	18.0	18.5	15.5	11.5	13.5
22	22.5	20.5	21.5	22.5	20.0	21.5	20.5	16.5	18.0	16.5	13.0	14.5
23	23.0	20.5	22.0	22.0	19.5	21.0	20.5	17.0	18.5	16.5	14.0	15.0
24	22.5	19.5	21.0	24.0	21.0	22.5	21.0	18.0	19.5	14.0	11.0	12.5
25	23.0	20.0	21.0	23.5	22.0	22.5	21.5	18.0	19.5	13.5	11.0	12.5
26	21.0	19.5	20.5	24.5	21.5	23.0	21.0	16.5	19.0	15.5	12.5	14.0
27	20.0	17.5	19.0	25.5	22.5	23.5	22.0	18.0	19.5	16.5	14.5	15.5
28	21.0	17.5	19.0	24.5	22.5	23.5	23.0	18.5	20.5	16.5	13.5	15.5
29	21.5	18.0	19.5	24.0	21.5	22.5	21.0	18.0	19.5	15.0	12.0	13.5
30	20.5	18.5	19.5	21.5	19.5	21.0	23.0	18.5	20.5	15.5	12.0	13.5
31	---	---	---	22.0	20.0	20.5	23.0	19.5	21.0	---	---	---
MONTH	23.0	14.5	18.5	25.5	18.0	21.5	25.0	16.5	20.0	24.0	11.0	17.0
YEAR	25.5	.0	11.0									

03488450 BRUMLEY CREEK AT BRUMLEY GAP, VA--Continued

TEMPERATURE, WATER (DEG. C), OCTOBER TO DECEMBER 1981

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
		OCTOBER			NOVEMBER			DECEMBER	
1	16.5	13.0	14.5	12.0	8.5	10.5	6.5	4.5	5.5
2	15.5	11.0	13.5	12.5	9.0	11.0	7.0	5.5	6.5
3	12.5	10.0	11.0	13.0	9.5	11.5	6.0	5.0	5.5
4	13.0	9.5	11.0	13.5	10.5	12.0	5.0	4.5	4.5
5	12.5	10.5	11.5	12.5	11.0	11.5	4.0	2.5	3.5
6	15.0	12.0	13.5	12.0	9.5	11.0	2.5	1.0	2.0
7	15.0	12.0	13.5	9.5	7.0	8.0	4.0	1.0	2.5
8	13.5	10.5	11.5	7.5	4.5	6.5	5.0	3.5	4.5
9	12.5	9.5	11.0	8.5	6.0	7.5	3.5	1.0	2.0
10	11.5	10.5	11.0	8.5	6.0	7.5	1.0	.5	.5
11	13.5	11.5	12.5	7.5	5.5	6.5	.5	.5	.5
12	13.5	12.0	12.5	7.0	4.5	5.5	1.0	.5	.5
13	13.5	10.0	11.5	6.5	4.0	5.0	.5	.5	.5
14	12.5	8.5	10.5	5.5	3.0	4.0	3.0	.5	2.0
15	12.0	9.5	10.5	5.5	2.5	4.0	4.0	2.5	3.5
16	13.5	11.5	12.5	5.5	3.0	4.5	2.5	1.5	2.0
17	15.0	10.5	12.5	7.5	5.5	6.5	2.5	1.0	1.5
18	14.0	11.5	12.5	8.0	6.0	7.0	2.5	.5	1.5
19	11.5	8.0	10.0	8.0	4.5	6.5	.0	.0	.0
20	10.5	6.0	8.0	8.5	4.5	7.0	.0	.0	.0
21	10.5	5.5	8.0	4.5	2.5	3.0	.0	.0	.0
22	11.5	7.5	9.5	3.5	2.0	2.5	.0	.0	.0
23	11.5	8.5	10.5	3.0	.5	2.0	5.5	.5	3.0
24	8.5	7.0	7.5	4.5	3.5	4.0	5.0	4.5	5.0
25	9.5	7.5	8.5	6.0	4.0	5.0	4.5	3.0	4.0
26	11.5	9.5	10.5	5.5	2.5	4.0	5.0	3.0	4.0
27	13.0	11.0	12.0	7.5	5.5	6.5	5.0	3.5	4.5
28	12.0	10.0	11.5	7.0	4.5	6.5	5.0	3.0	4.0
29	12.5	9.0	10.5	5.5	3.5	4.5	5.0	2.5	4.0
30	12.5	9.0	11.0	4.5	3.0	3.5	2.5	.5	1.5
31	12.0	9.5	10.5	---	---	---	2.5	1.0	1.5
MONTH	16.5	5.5	11.0	13.5	.5	6.5	7.0	.0	2.5

03490000 NORTH FORK HOLSTON RIVER NEAR GATE CITY, VA

LOCATION.--Lat 36°36'31", long 82°34'05", Scott County, Hydrologic Unit 06010101, on left bank 75 ft (23 m) upstream from bridge on U.S. Highway 23, 1.6 mi (2.6 km) downstream from Big Moccasin Creek, 2.1 mi (3.4 km) southeast of Gate City, and at mile 8.8 (14.2 km).

DRAINAGE AREA.--672 mi² (1,740 km²).

PERIOD OF RECORD.--October 1931 to December 1981 (discontinued as a continuous-record station; converted to a crest-stage partial-record station). Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 783: 1932(M). WSP 823: Drainage area. WSP 1276: 1932-34.

GAGE.--Water-stage recorder. Datum of gage is 1,197.56 ft (365.016 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Prior to 1957, diurnal fluctuation at low flow caused by one or more mills above station. Tennessee Valley Authority gage-height radio transmitter at station, receiver and recorder at Jefferson City, TN. Several observations of water temperature were made during the year. Water-quality records for some prior periods have been collected at this location.

AVERAGE DISCHARGE.--50 years, 908 ft³/s (25.71 m³/s), 18.35 in/yr (466 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,000 ft³/s (1,160 m³/s) Apr. 5, 1977, gage height, 19.79 ft (6.032 m), from rating curve extended above 31,000 ft³/s (880 m³/s) on basis of slope-area measurement of peak flow; minimum, 36 ft³/s (1.02 m³/s) Sept. 16, 17, 1964; minimum gage height, 1.00 ft (0.305 m) Jan. 6, 1940.

EXTREMES FOR PERIOD OCTOBER 1980 TO DECEMBER 1981.--Peak discharges above base of 7,000 ft³/s (200 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 29	0300	*9050	256	8.68	2.646	June 7	0430	7230	205	7.78	2.371

Water year 1981: Minimum daily discharge, 50 ft³/s (1.42 m³/s) Jan. 18.

October to December 1981: Maximum discharge during period, 3,580 ft³/s (101 m³/s) Dec. 24, gage height, 5.56 ft (1.695 m); minimum, 108 ft³/s (3.06 m³/s) Oct. 22, 23, gage height, 1.50 ft (0.457 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	129	130	215	179	194	688	685	662	1690	261	197	128
2	118	119	190	170	1500	630	691	585	1870	302	174	132
3	117	111	172	159	1760	542	679	507	2910	311	164	133
4	116	117	162	145	1020	510	616	438	2500	268	153	312
5	115	120	157	110	1000	1000	791	388	2530	248	150	1230
6	111	122	150	93	790	1940	1040	356	3290	269	169	678
7	109	119	144	125	481	1940	940	332	5450	651	229	451
8	106	116	139	115	466	1380	810	311	3820	534	563	470
9	103	112	149	147	365	1030	729	292	2660	389	691	346
10	102	109	177	131	348	840	734	276	1870	298	444	287
11	100	102	203	86	1010	710	810	316	1400	250	336	235
12	95	99	214	70	1290	609	760	395	1220	266	263	191
13	91	97	216	65	1220	530	700	610	992	267	275	176
14	89	96	194	80	978	471	651	507	1160	234	241	162
15	87	104	175	124	768	425	786	479	1060	209	210	206
16	87	105	163	123	609	410	818	469	858	336	229	794
17	87	115	153	98	555	402	791	488	724	706	253	1210
18	92	155	145	50	764	411	1380	443	605	379	247	853
19	106	216	138	52	1040	420	2100	895	529	286	211	572
20	117	253	129	80	1580	398	2570	5280	481	277	187	409
21	120	224	103	178	2400	379	3670	6000	444	259	168	327
22	114	177	85	304	1720	358	2650	3660	398	233	155	281
23	107	154	121	314	1570	345	1830	2100	361	225	146	235
24	105	232	142	259	1980	344	2090	1380	337	205	140	208
25	141	376	149	252	1610	354	1990	1030	310	203	136	187
26	179	408	144	219	1210	369	1540	827	294	210	132	173
27	257	333	130	191	953	426	1250	771	335	195	129	162
28	247	304	150	193	782	456	1030	4190	339	178	125	154
29	196	286	170	262	---	450	862	7870	283	231	122	143
30	158	249	179	287	---	494	751	4200	250	261	119	137
31	139	---	179	269	---	592	---	2420	---	229	118	---
TOTAL	3840	5260	4937	4930	29963	19853	36744	48477	40970	9170	6876	10982
MEAN	124	175	159	159	1070	640	1225	1564	1366	296	222	366
MAX	257	408	216	314	2400	1940	3670	7870	5450	706	691	1230
MIN	87	96	85	50	194	344	616	276	250	178	118	128
CFSM	.19	.26	.24	.24	1.59	.95	1.82	2.33	2.03	.44	.33	.55
IN.	.21	.29	.27	.27	1.66	1.10	2.03	2.68	2.27	.51	.38	.61

CAL YR 1980 TOTAL 300001 MEAN 820 MAX 10500 MIN 85 CFSM 1.22 IN 16.61
WTR YR 1981 TOTAL 222002 MEAN 608 MAX 7870 MIN 50 CFSM .91 IN 12.29

03490000 NORTH FORK HOLSTON RIVER NEAR GATE CITY, VA--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, OCTOBER TO DECEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	132	242	290									
2	144	211	283									
3	138	191	304									
4	142	176	314									
5	154	168	300									
6	149	167	278									
7	144	155	254									
8	136	148	238									
9	132	142	221									
10	125	138	216									
11	121	134	210									
12	119	128	194									
13	118	125	184									
14	115	122	215									
15	113	120	318									
16	112	122	687									
17	111	130	700									
18	116	129	666									
19	116	129	558									
20	113	151	396									
21	112	145	301									
22	109	155	493									
23	138	145	1460									
24	160	163	3190									
25	180	173	2440									
26	233	184	1550									
27	257	207	1140									
28	438	240	936									
29	505	294	778									
30	392	303	657									
31	293	---	681									
TOTAL	5367	5037	20452									
MEAN	173	168	660									
MAX	505	303	3190									
MIN	109	120	184									
CFSM	.26	.25	.98									
IN.	.30	.28	1.13									

CAL YR 1981 TOTAL 238821 MEAN 654 MAX 7870 MIN 50 CFSM .97 IN 13.22

03521500 CLINCH RIVER AT RICHLANDS, VA

LOCATION.--Lat 37°05'10", long 81°46'52", Tazewell County, Hydrologic Unit 06010205, on right bank 1.0 mi (1.6 km) southeast of Richlands, 1.6 mi (2.6 km) downstream from Middle Creek, 2.2 mi (3.5 km) upstream from Big Creek, and at mile 321.0 (516.5 km).

DRAINAGE AREA.--137 mi² (355 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 1306: 1946(M), 1948-50(M).

GAGE.--Water-stage recorder. Datum of gage is 1,924.08 ft (586.460 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1950, nonrecording gage at bridge 1.1 mi (1.8 km) downstream at datum 6.53 ft (1.990 m) lower.

REMARKS.--Records good. Prior to October 1970, diurnal fluctuation at low flow caused by mill 1.7 mi (2.7 km) above station.

AVERAGE DISCHARGE.--36 years, 194 ft³/s (5.494 m³/s), 19.23 in/yr (488 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft³/s (273 m³/s) Jan. 29, 1957, gage height, 19.3 ft (5.88 m), from floodmark, from rating curve extended above 4,900 ft³/s (140 m³/s) on basis of contracted-opening measurement of peak flow; minimum, 3.2 ft³/s (0.091 m³/s) Sept. 8, 1955; minimum daily, 8.8 ft³/s (0.25 m³/s) July 6, Sept. 10, 16, 1964; minimum gage height, 0.45 ft (0.137 m) July 2, 3, 1951.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 22, 1901, reached a stage of 21.3 ft (6.49 m), present site and datum, from floodmark, discharge, 11,500 ft³/s (326 m³/s), from report by Tennessee Valley Authority. Flood of Feb. 18, 1944, reached a stage of 13.7 ft (4.18 m), present site and datum, from floodmark, discharge, 5,500 ft³/s (156 m³/s), from report by Tennessee Valley Authority.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s (45 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 20	0100	2420	68.5	7.57	2.307	June 1	2330	*2810	79.6	8.38	2.554
May 28	1500	2410	68.3	7.55	2.301						

Minimum daily discharge, 12 ft³/s (0.34 m³/s) Jan. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	36	50	40	61	145	145	126	881	105	40	38
2	31	35	45	38	255	126	145	108	1430	85	36	42
3	32	33	44	37	225	111	129	95	559	69	35	42
4	33	34	42	31	139	126	121	89	365	63	34	132
5	31	36	40	20	111	454	162	83	818	62	34	99
6	29	35	39	25	95	597	185	80	522	72	46	66
7	26	32	38	32	81	373	164	78	1100	181	64	62
8	25	29	37	32	73	253	147	72	700	102	99	51
9	25	28	41	31	67	200	157	66	435	78	71	44
10	25	28	54	29	70	166	185	64	329	66	53	38
11	24	27	54	16	282	145	172	91	287	59	52	32
12	24	25	51	15	237	127	155	91	213	55	119	30
13	23	25	49	19	177	113	147	75	367	52	72	28
14	23	25	45	29	140	107	143	70	274	56	52	26
15	23	27	44	30	116	91	161	88	209	215	49	209
16	23	33	42	25	104	132	147	83	172	118	61	340
17	23	39	37	12	179	183	168	73	147	101	51	168
18	25	71	34	13	265	170	308	72	131	77	44	99
19	34	75	33	15	233	157	303	473	116	75	36	72
20	37	55	30	28	356	142	881	1420	108	70	34	60
21	29	49	21	42	345	127	783	498	98	80	32	53
22	27	41	25	61	245	131	438	285	90	63	29	50
23	26	39	31	62	293	143	313	208	83	54	28	45
24	25	77	33	57	365	164	303	161	75	51	26	42
25	74	124	42	51	265	217	253	131	95	49	26	34
26	101	84	35	52	208	213	209	111	139	50	25	34
27	58	67	32	58	164	200	179	265	90	47	24	30
28	44	64	37	67	142	179	152	1890	75	42	23	29
29	42	57	38	62	---	157	139	1660	66	60	23	28
30	41	52	41	55	---	161	134	873	64	54	22	26
31	38	---	41	54	---	159	---	515	---	45	23	---
TOTAL	1051	1382	1225	1138	5293	5769	7028	9994	10038	2356	1363	2049
MEAN	33.9	46.1	39.5	36.7	189	186	234	322	335	76.0	44.0	68.3
MAX	101	124	54	67	365	597	881	1890	1430	215	119	340
MIN	23	25	21	12	61	91	121	64	64	42	22	26
CFSM	.25	.34	.29	.27	1.38	1.36	1.71	2.35	2.45	.56	.32	.50
IN.	.29	.38	.33	.31	1.44	1.57	1.91	2.71	2.73	.64	.37	.56

CAL YR 1980 TOTAL 64246 MEAN 176 MAX 1910 MIN 21 CFSM 1.29 IN 17.44
WTR YR 1981 TOTAL 48686 MEAN 133 MAX 1890 MIN 12 CFSM .97 IN 13.22

03521500 CLINCH RIVER AT RICHLANDS, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1979 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
OCT 06...	1330	29	360	8.0	11.5	12.4	--	--	--	--	--	--
DEC 02...	0930	48	323	7.3	4.0	11.4	--	--	--	--	--	--
JAN 12...	1030	15	390	7.1	.0	14.2	--	--	--	--	--	--
FEB 26...	1200	208	255	8.1	6.0	13.2	--	--	--	--	--	--
APR 06...	0930	185	255	7.6	10.0	11.4	--	--	--	--	--	--
MAY 18...	1545	71	265	8.9	19.0	11.6	--	--	--	--	--	--
JUL 09...	1320	76	295	8.5	24.0	9.0	--	--	--	--	--	--
AUG 27...	1230	24	320	8.3	22.0	8.5	170	18	46	13	5.3	1.5

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)
OCT 06...	157	10	--	--	--	189	--	--	--	--	--	--
DEC 02...	162	16	--	--	--	189	--	--	--	--	--	--
JAN 12...	168	16	--	--	--	217	--	--	--	--	--	--
FEB 26...	98	17	--	--	--	150	--	--	--	--	--	--
APR 06...	100	15	--	--	--	143	--	--	--	--	--	--
MAY 18...	116	13	--	--	--	158	--	--	--	--	--	--
JUL 09...	128	14	--	--	--	182	--	--	--	--	--	--
AUG 27...	150	13	7.2	.2	2.9	178	.52	.060	2	<1	100	1

< Actual value is known to be less than the value shown.

03521500 CLINCH RIVER AT RICHLANDS, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
OCT 06...	--	--	--	--	--	--	170	10	--	--	--	10
DEC 02...	--	--	--	--	--	--	200	30	--	--	--	10
JAN 12...	--	--	--	--	--	--	100	<10	--	--	--	10
FEB 26...	--	--	--	--	--	--	280	20	--	--	--	30
APR 06...	--	--	--	--	--	--	490	<10	--	--	--	60
MAY 18...	--	--	--	--	--	--	240	20	--	--	--	20
JUL 09...	--	--	--	--	--	--	420	20	--	--	--	40
AUG 27...	2	10	5	<10	4	5	400	<10	5200	13	20	30

< Actual value is known to be less than the value shown.

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
OCT 06...	<10	--	--	--	--	--	--	--	--	--	--	--
DEC 02...	10	--	--	--	--	--	--	--	--	--	--	--
JAN 12...	10	--	--	--	--	--	--	--	--	--	--	--
FEB 26...	30	--	--	--	--	--	--	--	--	--	--	--
APR 06...	20	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	10	--	--	--	--	--	--	--	--	--	--	--
JUL 09...	20	--	--	--	--	--	--	--	--	--	--	--
AUG 27...	10	260	<.1	<.01	<1	<1	<1	10	24	<.01	29.0	12

< Actual value is known to be less than the value shown.

03524000 CLINCH RIVER AT CLEVELAND, VA

LOCATION.--Lat 36°56'41", long 82°09'18", Russell County, Hydrologic Unit 06010205, on right bank 500 ft (152 m) upstream from highway bridge at Cleveland, 0.5 mi (0.8 km) downstream from Muddy Hollow, 2.3 mi (3.7 km) downstream from Weaver Creek, 4.4 mi (7.1 km) downstream from Thompson Creek, and at mile 271.6 (437.0 km).

DRAINAGE AREA.--528 mi² (1,368 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1920 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1306: 1921-23(M), 1926(M), 1929-31(M). WSP 1706: 1927(M).

GAGE.--Water-stage recorder. Datum of gage is 1,500.24 ft (457.273 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 1, 1931, nonrecording gage on highway bridge 500 ft (152 m) downstream at datum 1.0 ft (0.30 m) lower.

REMARKS.--Records good.

AVERAGE DISCHARGE.--61 years, 713 ft³/s (20.19 m³/s), 18.34 in/yr (466 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,500 ft³/s (977 m³/s) Apr. 5, 1977, gage height, 26.40 ft (8.047 m), from rating curve extended above 26,000 ft³/s (740 m³/s) on basis of contracted-opening measurement at gage height 24.40 ft (7.437 m); minimum, 35 ft³/s (0.99 m³/s) Sept. 28, 1964; minimum gage height, 0.96 ft (0.293 m) Feb. 10, 1934.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,700 ft³/s (133 m³/s) May 29, gage height, 8.66 ft (2.640 m), no peak above base of 5,000 ft³/s (140 m³/s); minimum daily, 40 ft³/s (1.13 m³/s) Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	85	105	153	122	141	493	548	440	1290	234	127	86
2	86	99	141	121	924	452	569	398	2530	308	119	100
3	92	94	133	116	1100	390	525	352	2080	266	116	132
4	92	97	126	102	622	363	466	319	1340	223	114	378
5	89	101	120	80	579	928	541	299	2320	207	111	604
6	90	103	117	60	474	1760	733	282	1930	262	138	311
7	84	101	113	80	306	1450	651	272	2740	282	219	225
8	82	97	110	108	262	1000	568	262	2700	331	699	205
9	79	92	115	112	226	748	533	246	1840	258	404	167
10	77	92	136	100	232	599	610	231	1350	214	262	149
11	77	86	158	90	1160	501	612	273	1110	191	191	129
12	74	83	158	70	1260	431	556	320	842	177	172	118
13	71	83	147	45	819	376	500	294	865	167	208	111
14	69	79	136	60	651	346	460	255	1230	160	185	105
15	67	94	126	90	496	314	545	280	836	184	150	462
16	69	105	120	100	413	308	513	303	643	325	148	2090
17	69	103	116	80	600	496	506	281	531	305	171	1200
18	78	151	112	40	1100	523	976	259	462	246	150	600
19	89	214	108	42	1010	476	1220	557	406	211	131	385
20	95	206	103	50	1270	426	2040	3930	366	199	122	293
21	88	159	85	132	1510	379	2960	2410	344	196	114	244
22	88	132	65	195	1100	348	1820	1440	316	204	109	210
23	82	121	80	218	1060	386	1290	963	293	174	105	185
24	79	187	95	201	1360	485	1160	695	269	155	102	166
25	115	347	111	157	1120	582	1010	542	254	159	100	153
26	195	338	108	173	840	682	825	447	338	148	97	144
27	231	246	100	160	649	627	687	461	356	137	94	136
28	161	211	95	192	526	570	585	2460	274	135	91	130
29	130	194	105	208	---	500	511	4280	241	149	89	123
30	118	173	117	198	---	484	471	2730	220	158	88	119
31	113	---	123	164	---	562	---	1780	---	150	86	---
TOTAL	3014	4293	3632	3666	21810	17985	24991	28061	30316	6515	5012	9460
MEAN	97.2	143	117	118	779	580	833	905	1011	210	162	315
MAX	231	347	158	218	1510	1760	2960	4280	2740	331	699	2090
MIN	67	79	65	40	141	308	460	231	220	135	86	86
CFSM	.18	.27	.22	.22	1.48	1.10	1.58	1.71	1.92	.40	.31	.60
IN.	.21	.30	.26	.26	1.54	1.27	1.76	1.98	2.14	.46	.35	.67

CAL YR 1980 TOTAL 217725 MEAN 595 MAX 5640 MIN 65 CFSM 1.13 IN 15.34
WTR YR 1981 TOTAL 158755 MEAN 435 MAX 4280 MIN 40 CFSM .82 IN 11.18

03524000 CLINCH RIVER AT CLEVELAND, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1979 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT 06...	1100	88	340	8.2	11.0	8.6	--	--	--	--	--	--
DEC 02...	0830	141	330	7.4	4.0	9.6	--	--	--	--	--	--
JAN 12...	0935	70	397	8.1	.0	14.0	--	--	--	--	--	--
FEB 23...	1000	922	263	7.9	8.0	10.9	--	--	--	--	--	--
APR 06...	0930	738	260	6.9	11.0	8.8	--	--	--	--	--	--
MAY 18...	0945	261	275	8.6	17.0	7.1	--	--	--	--	--	--
JUL 06...	0930	246	288	8.3	24.0	6.6	--	--	--	--	--	--
AUG 24...	0910	101	315	8.4	20.0	5.7	140	12	38	12	5.4	1.8

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
OCT 06...	143	16	--	--	--	196	--	--	--	--	--	--
DEC 02...	140	23	--	--	--	187	--	--	--	--	--	--
JAN 12...	190	21	--	--	--	226	--	--	--	--	--	--
FEB 23...	99	18	--	--	--	141	--	--	--	--	--	--
APR 06...	114	17	--	--	--	155	--	--	--	--	--	--
MAY 18...	110	22	--	--	--	148	--	--	--	--	--	--
JUL 06...	118	18	--	--	--	161	--	--	--	--	--	--
AUG 24...	140	20	5.8	<.1	2.9	168	.51	.060	2	<1	100	2

< Actual value is known to be less than the value shown.

03524000 CLINCH RIVER AT CLEVELAND, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
OCT 06...	--	--	--	--	--	--	330	10	--	--	--	20
DEC 02...	--	--	--	--	--	--	160	<10	--	--	--	10
JAN 12...	--	--	--	--	--	--	80	20	--	--	--	20
FEB 23...	--	--	--	--	--	--	600	<10	--	--	--	30
APR 06...	--	--	--	--	--	--	270	20	--	--	--	40
MAY 18...	--	--	--	--	--	--	180	10	--	--	--	20
JUL 06...	--	--	--	--	--	--	350	40	--	--	--	20
AUG 24...	<1	10	8	<10	4	4	440	20	8200	12	10	40

< Actual value is known to be less than the value shown.

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATE-RIAL (GM/KG)	SEDI-MENT, SUS-PENDED (MG/L)
OCT 06...	10	--	--	--	--	--	--	--	--	--	--	--
DEC 02...	10	--	--	--	--	--	--	--	--	--	--	--
JAN 12...	10	--	--	--	--	--	--	--	--	--	--	--
FEB 23...	<10	--	--	--	--	--	--	--	--	--	--	--
APR 06...	10	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	10	--	--	--	--	--	--	--	--	--	--	--
JUL 06...	<10	--	--	--	--	--	--	--	--	--	--	--
AUG 24...	10	170	<.1	<.01	<1	<1	1	60	21	<.01	8.00	15

< Actual value is known to be less than the value shown.

03524500 GUEST RIVER AT COEBURN, VA

LOCATION.--Lat 36°55'45", long 82°27'23", Wise County, Hydrologic Unit 06010205, on right bank 30 ft (9 m) downstream from bridge on State Highway 72, 1.0 mi (1.6 km) southeast of Coeburn, 1.4 mi (2.3 km) upstream from Jaybird Branch, 1.8 mi (2.9 km) downstream from Pine Camp Creek, and at mile 6.3 (10.1 km).

DRAINAGE AREA.--87.3 mi^2 (226.1 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1949 to September 1959, October 1959 to September 1978 (annual maximum only), October 1978 to September 1981 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

REVISED RECORDS.--WSP 1436: 1950(P), 1955(P).

GAGE.--Water-stage recorder. Datum of gage is 1,925.80 ft (586.984 m) National Geodetic Vertical Datum of 1929. Oct. 1, 1959, to Sept. 30, 1978, crest-stage gage at same site and datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--13 years, 141 ft^3/s (3.993 m^3/s), 21.93 in/yr (557 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,000 ft^3/s (510 m^3/s) Apr. 5, 1977, gage height, 20.95 ft (6.386 m), from rating curve extended above 3,500 ft^3/s (99 m^3/s) on basis of slope-area measurement of peak flow; minimum, 1.6 ft^3/s (0.045 m^3/s) Oct. 21, 22, 25, 26, Nov. 9, 10, 1953; minimum gage height, 1.23 ft (0.375 m) Sept. 22, 23, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft^3/s (42 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 11	0500	*1670	47.3	6.85	2.088	Aug. 16	2345	1550	43.9	6.55	1.996

Minimum daily discharge, 11 ft^3/s (0.31 m^3/s) Jan. 17.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	14	50	27	74	107	227	99	78	54	17	21
2	18	14	44	28	512	95	184	88	107	230	20	21
3	19	15	40	30	266	85	147	80	83	92	20	20
4	19	17	34	26	151	94	127	73	113	54	19	24
5	17	22	32	20	114	264	239	69	101	58	19	23
6	13	20	30	23	89	336	268	66	174	86	83	20
7	13	17	28	27	77	245	213	62	759	184	53	23
8	14	16	26	28	69	176	169	61	393	85	213	25
9	14	16	30	26	65	138	164	53	227	59	90	22
10	14	16	57	24	174	117	160	51	159	47	54	19
11	14	15	52	20	1260	103	151	64	117	40	40	17
12	14	14	46	14	547	91	140	56	90	35	28	17
13	13	14	42	15	277	83	128	50	97	30	25	16
14	13	14	37	23	182	79	125	50	99	28	22	15
15	13	15	33	25	140	72	166	113	73	37	21	191
16	13	16	32	20	121	90	141	76	62	42	488	440
17	14	15	30	11	211	117	176	62	54	53	665	154
18	15	76	27	12	289	105	514	56	58	34	128	80
19	20	58	25	13	246	101	508	247	40	40	85	56
20	16	36	23	25	265	95	762	372	37	32	68	44
21	15	28	18	66	232	88	668	262	35	35	59	35
22	15	24	19	72	189	90	349	178	37	29	48	30
23	14	24	21	62	239	104	254	130	29	27	40	26
24	14	164	24	52	250	119	262	101	26	22	40	23
25	24	168	35	43	199	209	216	83	28	22	26	22
26	31	89	30	31	159	207	181	76	28	21	24	21
27	21	92	26	37	128	195	154	80	28	20	23	20
28	16	110	22	52	111	166	132	101	23	20	23	19
29	15	82	23	48	---	139	117	101	22	26	22	19
30	15	63	30	47	---	256	111	86	21	23	22	18
31	15	---	30	40	---	294	---	86	---	18	21	---
TOTAL	498	1284	996	987	6636	4460	7153	3132	3198	1583	2506	1481
MEAN	16.1	42.8	32.1	31.8	237	144	238	101	107	51.1	80.8	49.4
MAX	31	168	57	72	1260	336	762	372	759	230	665	440
MIN	13	14	18	11	65	72	111	50	21	18	17	15
CFSM	.18	.49	.37	.36	2.72	1.65	2.73	1.16	1.23	.59	.93	.57
IN.	.21	.55	.42	.42	2.83	1.90	3.05	1.33	1.36	.67	1.07	.63

CAL YR 1980 TOTAL 40803 MEAN 111 MAX 1360 MIN 13 CFSM 1.27 IN 17.39
WTR YR 1981 TOTAL 33914 MEAN 92.9 MAX 1260 MIN 11 CFSM 1.06 IN 14.45

03524500 GUEST RIVER AT COEBURN, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1978 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT 06...	1045	13	530	8.0	8.5	10.7	--	--	--	--	--	--
DEC 02...	1245	42	295	7.4	5.5	10.5	--	--	--	--	--	--
JAN 12...	1415	14	439	7.3	.0	13.6	--	--	--	--	--	--
FEB 25...	1245	199	227	6.4	4.0	11.6	--	--	--	--	--	--
APR 06...	1415	264	189	6.7	10.5	10.4	--	--	--	--	--	--
MAY 20...	1445	372	215	7.2	13.0	9.4	--	--	--	--	--	--
JUL 08...	1240	81	342	7.7	22.5	7.9	--	--	--	--	--	--
AUG 26...	1320	24	565	8.5	21.0	9.2	230	160	52	25	19	3.4

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
OCT 06...	92	130	--	--	--	351	--	--	--	--	--	--
DEC 02...	46	62	--	--	--	171	--	--	--	--	--	--
JAN 12...	75	93	--	--	--	200	--	--	--	--	--	--
FEB 25...	28	52	--	--	--	130	--	--	--	--	--	--
APR 06...	27	47	--	--	--	124	--	--	--	--	--	--
MAY 20...	26	53	--	--	--	135	--	--	--	--	--	--
JUL 08...	51	85	--	--	--	216	--	--	--	--	--	--
AUG 26...	75	160	11	.2	6.3	378	1.9	.080	2	<1	100	2

< Actual value is known to be less than the value shown.

03524500 GUEST RIVER AT COEBURN, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
OCT												
06...	--	--	--	--	--	--	390	10	--	--	--	140
DEC												
02...	--	--	--	--	--	--	550	20	--	--	--	290
JAN												
12...	--	--	--	--	--	--	610	10	--	--	--	490
FEB												
25...	--	--	--	--	--	--	650	10	--	--	--	400
APR												
06...	--	--	--	--	--	--	1900	50	--	--	--	340
MAY												
20...	--	--	--	--	--	--	4800	380	--	--	--	420
JUL												
08...	--	--	--	--	--	--	3600	20	--	--	--	410
AUG												
26...	<1	10	2	<10	3	4	620	30	3400	10	10	220

< Actual value is known to be less than the value shown.

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	MANGA-NESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATE-RIAL (GM/KG)	SEDI-MENT, SUS-PENDED (MG/L)
OCT												
06...	100	--	--	--	--	--	--	--	--	--	--	--
DEC												
02...	290	--	--	--	--	--	--	--	--	--	--	--
JAN												
12...	450	--	--	--	--	--	--	--	--	--	--	--
FEB												
25...	370	--	--	--	--	--	--	--	--	--	--	--
APR												
06...	260	--	--	--	--	--	--	--	--	--	--	--
MAY												
20...	280	--	--	--	--	--	--	--	--	--	--	--
JUL												
08...	250	--	--	--	--	--	--	--	--	--	--	--
AUG												
26...	190	350	<.1	<.01	2	<1	2	<10	32	<.01	23.0	13

< Actual value is known to be less than the value shown.

03524900 STONY CREEK AT KA, VA

LOCATION.--Lat 36°48'57", long 82°37'02", Scott County, Hydrologic Unit 06010205, on left bank on State Highway 619 at Ka, 600 ft (180 m) downstream from Straight Fork, and at mile 4.2 (6.8 km).

DRAINAGE AREA.--30.9 mi² (80.0 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1980 to September 1981 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

GAGE.--Water-stage recorder. Altitude of gage is 1,510 ft (460 m), from topographic map.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,180 ft³/s (90.1 m³/s) Mar. 21, 1980, gage height, 5.99 ft (1.826 m), from rating curve extended above 310 ft³/s (8.8 m³/s); minimum, 1.2 ft³/s (0.034 m³/s) Sept. 14, 15, 1981, gage height, 1.39 ft (0.424 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 771 ft³/s (21.8 m³/s) at 2230 hours June 6, gage height, 4.39 ft (1.338 m), no other peak above base of 500 ft³/s (14 m³/s); minimum, 1.2 ft³/s (0.034 m³/s) Sept. 14, 15, gage height, 1.39 ft (0.424 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.1	4.7	31	18	34	51	136	37	48	6.1	3.7	2.0
2	3.3	4.4	27	18	203	44	117	32	86	17	3.4	1.6
3	3.5	4.4	25	16	132	38	98	27	120	11	3.7	2.6
4	3.6	5.9	22	14	93	42	78	25	147	7.7	3.6	5.6
5	3.3	8.3	21	12	71	121	141	22	111	6.9	3.1	3.6
6	3.1	7.4	19	13	60	166	154	21	212	16	16	2.8
7	2.8	6.8	18	15	43	127	119	19	422	26	16	2.8
8	2.4	6.3	17	17	40	90	86	17	188	17	67	2.7
9	2.3	6.1	24	15	36	71	78	16	118	13	38	2.5
10	2.3	5.6	44	12	59	59	76	15	82	9.9	22	2.1
11	2.2	5.0	47	10	348	51	80	20	60	8.3	16	1.8
12	2.0	4.6	40	8.0	209	43	80	17	45	7.3	12	1.6
13	1.8	4.4	33	9.0	133	38	73	15	36	7.0	9.3	1.4
14	1.6	4.3	27	11	95	33	69	14	30	5.9	7.7	1.3
15	1.5	4.6	24	12	75	28	80	33	24	5.6	7.3	33
16	1.5	4.9	22	9.0	67	42	80	25	20	11	8.1	49
17	1.5	7.0	20	6.5	107	47	86	20	18	17	6.2	27
18	3.3	37	17	7.0	140	52	206	17	16	12	4.9	16
19	6.4	32	16	8.0	134	52	203	147	13	10	4.6	11
20	4.5	22	13	9.6	169	47	250	184	11	8.7	4.4	9.1
21	3.7	17	11	13	175	42	218	113	11	8.3	3.5	7.3
22	3.1	14	12	14	135	42	139	77	11	7.4	3.2	6.1
23	2.8	14	13	14	128	45	105	58	9.0	6.2	2.7	5.1
24	2.5	133	16	15	126	48	102	44	7.4	5.2	2.4	4.4
25	5.7	106	15	15	104	76	100	34	6.9	5.0	2.2	3.9
26	9.7	58	14	21	83	83	85	28	7.6	4.6	2.0	3.5
27	7.1	55	13	50	65	79	70	31	6.0	4.0	1.8	3.3
28	6.2	69	13	67	56	67	58	45	5.1	4.4	1.7	3.0
29	6.0	55	17	55	---	59	51	65	4.6	8.5	1.5	2.8
30	5.6	40	19	45	---	151	45	61	4.3	6.0	1.4	2.6
31	5.0	---	19	39	---	173	---	55	---	4.5	1.3	---
TOTAL	113.4	746.7	669	588.1	3120	2107	3263	1334	1879.9	287.5	280.7	221.5
MEAN	3.66	24.9	21.6	19.0	111	68.0	109	43.0	62.7	9.27	9.05	7.38
MAX	9.7	133	47	67	348	173	250	184	422	26	67	49
MIN	1.5	4.3	11	6.5	34	28	45	14	4.3	4.0	1.3	1.3
CFSM	.12	.81	.70	.62	3.59	2.20	3.53	1.39	2.03	.30	.29	.24
IN.	.14	.90	.81	.71	3.76	2.54	3.93	1.61	2.26	.35	.34	.27

WTR YR 1981 TOTAL 14610.8 MEAN 40.0 MAX 422 MIN 1.3 CFSM 1.29 IN 17.59

03524900 STONY CREEK AT KA, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1979 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT												
06...	0925	2.3	42	6.4	10.0	10.3	--	--	--	--	--	--
DEC												
04...	1100	22	20	7.5	2.5	--	--	--	--	--	--	--
JAN												
14...	1040	11	20	7.1	.0	14.4	--	--	--	--	--	--
FEB												
23...	1430	130	19	7.5	6.0	11.6	--	--	--	--	--	--
APR												
06...	1530	152	23	6.3	9.5	10.8	--	--	--	--	--	--
20...	1525	295	--	--	--	--	--	--	--	--	--	--
21...	1105	218	--	--	--	--	--	--	--	--	--	--
MAY												
18...	1530	17	22	6.9	16.0	9.6	--	--	--	--	--	--
JUL												
06...	1500	16	34	7.2	19.5	8.5	--	--	--	--	--	--
AUG												
24...	1425	2.1	41	7.4	21.0	6.2	13	0	2.6	1.5	1.5	.7

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
OCT												
08...	14	4.0	--	--	--	26	--	--	--	--	--	--
DEC												
04...	2.0	4.3	--	--	--	17	--	--	--	--	--	--
JAN												
14...	3.0	3.8	--	--	--	17	--	--	--	--	--	--
FEB												
23...	7.0	4.9	--	--	--	16	--	--	--	--	--	--
APR												
06...	3.0	5.1	--	--	--	20	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
18...	4.0	4.2	--	--	--	22	--	--	--	--	--	--
JUL												
06...	9.0	4.3	--	--	--	20	--	--	--	--	--	--
AUG												
24...	13	4.1	1.1	<.1	4.3	31	.16	<.010	2	<1	100	1

< Actual value is known to be less than the value shown.

02074218 DAN RIVER NEAR MAYFIELD, NC--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968-70, 1972-73, 1977 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1976 to current year.
WATER TEMPERATURES: October 1976 to current year.

INSTRUMENTATION.--Temperature recorder since October 1977. Water-quality monitor since January 1981.

REMARKS.--Station is part of North Carolina district's Primary Accounting Network used to define stream-quality characteristics of the State's major streams. Water temperatures near left bank sometimes affected by heated releases from power plant located 8.4 mi (13.5 km) upstream. Releases from town of Eden's sewage treatment plant enter river on left bank approximately 10.2 mi (16.4 km) upstream.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 258 micromhos Aug. 9, 1981; minimum daily, 37 micromhos Oct. 10, 1976.
WATER TEMPERATURES: Maximum, 33.5°C June 16, 1981; minimum, 0.0°C Feb. 11, 12, 18, 19, 1979, Feb. 3, Mar. 3, 1980, Jan. 12, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 258 micromhos Aug. 9; minimum daily, 49 micromhos Sept. 8.
WATER TEMPERATURES: Maximum, 33.5°C June 16; minimum, 0.0°C Jan. 12.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
OCT											
15...	1130	724	152	6.7	14.0	5	10.1	22	0	5.6	2.0
JAN											
07...	1100	934	120	6.4	3.5	5	13.8	21	0	5.5	1.8
FEB											
09...	1045	895	98	7.1	3.0	--	--	--	--	--	--
APR											
02...	1100	2110	92	7.1	13.5	80	9.8	20	0	4.9	1.9
28...	1050	1200	130	6.4	20.0	10	8.7	23	0	5.8	2.1
JUN											
22...	1400	550	140	6.9	31.0	5	7.1	20	0	4.4	2.2
AUG											
26...	1030	436	365	6.5	24.0	15	7.5	23	0	5.6	2.2
SEP											
29...	1030	517	140	7.2	17.0	6	7.9	22	0	5.5	2.1

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	BICAR-BONATE FET-FLD (MG/L AS HCO3)	CAR-BONATE FET-FLD (MG/L AS CO3)	ALKA-LINITY FIELD (MG/L AS CACO3)	CARBON DIOXIDE DIS-SOLVED (MG/L AS CO2)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)
OCT											
15...	21	65	1.9	1.9	42	0	34	11	8.6	18	.1
JAN											
07...	12	53	1.1	1.4	35	0	29	52	6.9	13	.1
FEB											
09...	--	--	--	--	--	--	--	--	--	--	--
APR											
02...	13	56	1.3	2.0	28	0	23	3.6	8.1	14	<.1
28...	20	63	1.8	1.8	40	0	33	21	7.1	18	.1
JUN											
22...	23	68	2.2	2.4	37	0	30	7.5	7.4	28	.1
AUG											
26...	54	82	4.9	1.9	47	0	39	22	17	60	.1
SEP											
29...	17	60	1.6	2.1	50	0	41	5.0	8.7	10	.1

< Actual value is known to be less than the value shown.

03527000 CLINCH RIVER AT SPEERS FERRY, VA

LOCATION.--Lat 36°38'55", long 82°45'02", Scott County, Hydrologic Unit 06010205, on right bank 200 ft (61 m) downstream from bridge on U.S. Highway 58, 0.5 mi (0.8 km) downstream from Copper Creek, 0.8 mi (1.3 km) northwest of Speers Ferry, 1.8 mi (2.9 km) south of Clinchport, and at mile 211.0 (339.5 km).

DRAINAGE AREA.--1,126 mi² (2,916 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1920 to September 1976, October 1976 to September 1978 (annual maximum only), October 1978 to September 1981 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

REVISED RECORDS.--WSP 823: Drainage area. WSP 1276: 1925(M), 1927, 1928-31(M), 1932, 1935(M). WSP 1306: 1922(M).

GAGE.--Water-stage recorder. Datum of gage is 1,196.52 ft (364.699 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 23, 1926, nonrecording gage at site 400 ft (122 m) upstream at datum 1.50 ft (0.457 m) higher. Nov. 23, 1926, to Nov. 6, 1931, nonrecording gage, and Oct. 1, 1976, to Sept. 30, 1978, crest-stage gage, at same site and datum.

REMARKS.--Records good. Prior to May 1951, diurnal fluctuation at low flow caused by mills above station.

AVERAGE DISCHARGE.--59 years, 1,592 ft³/s (45.09 m³/s), 19.20 in/yr (488 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 89,000 ft³/s (2,520 m³/s) Apr. 5, 1977, gage height, 36.69 ft (11.183 m), from floodmarks, from rating curve extended above 45,000 ft³/s (1,300 m³/s) on basis of slope-area measurement of peak flow; minimum, 42 ft³/s (1.19 m³/s) Sept. 29, Oct. 23, 1939; minimum daily, 77 ft³/s (2.18 m³/s) Oct. 7, 8, 14, 15, 22, 1930; minimum gage height, 0.82 ft (0.250 m) Oct. 13, 1943.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1862 reached a stage of 33 ft (10.1 m), present site and datum, from reports of the Tennessee Valley Authority. Flood of Feb. 28, 1902, reached a stage of 26.6 ft (8.11 m), at site 400 ft (122 m) upstream and at datum about 1 ft (0.3 m) higher, from records of the National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,230 ft³/s (233 m³/s) June 7, gage height, 10.38 ft (3.164 m), no peak above base of 10,000 ft³/s (280 m³/s); minimum daily, 110 ft³/s (3.12 m³/s) Jan. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	198	228	484	310	406	1170	1610	1050	2120	460	294	188
2	186	212	420	307	1920	1070	1490	964	2060	610	268	188
3	188	203	380	299	3040	975	1360	873	4040	771	271	184
4	200	207	340	281	1940	915	1230	783	3040	604	245	269
5	200	209	328	214	1220	1480	1580	710	2490	500	231	400
6	195	207	313	170	952	2610	2130	660	3680	498	276	876
7	184	207	297	234	861	2860	1890	622	7430	1040	435	999
8	176	206	284	300	752	2220	1560	586	5810	849	1180	468
9	169	198	314	248	667	1700	1380	550	3950	689	1510	407
10	162	193	428	230	622	1400	1360	516	2760	560	851	332
11	157	186	458	210	3040	1220	1520	567	2140	496	575	287
12	151	176	448	180	3620	1070	1500	619	1760	457	437	254
13	148	170	428	120	2510	958	1380	614	1470	509	369	230
14	145	167	394	190	1800	871	1250	565	1560	408	356	211
15	142	169	360	200	1460	795	1360	656	1660	364	362	728
16	139	174	337	212	1230	771	1390	715	1290	418	351	3170
17	136	188	318	266	1170	817	1360	653	1080	792	1190	2960
18	139	291	302	110	1710	974	2140	596	927	655	643	1640
19	160	413	287	120	2170	1000	3270	910	822	515	421	1040
20	191	418	267	130	2330	942	3820	3160	740	448	351	743
21	191	399	222	248	3200	872	6050	5180	692	431	305	578
22	176	337	170	347	2560	810	4440	2880	643	403	274	482
23	169	302	200	427	2120	826	2920	1970	592	387	256	419
24	160	579	242	455	2800	929	2540	1480	532	353	243	369
25	184	1240	295	435	2420	1100	2330	1190	492	331	231	335
26	254	908	248	400	1920	1290	1980	990	544	319	215	308
27	314	801	240	399	1550	1360	1680	895	540	310	207	291
28	375	808	230	456	1300	1260	1450	1170	594	306	199	275
29	346	719	260	477	---	1140	1280	3790	485	345	191	260
30	282	579	301	498	---	1290	1150	4430	428	333	188	245
31	252	---	308	445	---	1790	---	2860	---	315	184	---
TOTAL	6069	11094	9903	8918	51290	38485	60400	43204	56371	15476	13109	19136
MEAN	196	370	319	288	1832	1241	2013	1394	1879	499	423	638
MAX	375	1240	484	498	3620	2860	6050	5180	7430	1040	1510	3170
MIN	136	167	170	110	406	771	1150	516	428	306	184	184
CFSM	.17	.33	.28	.26	1.63	1.10	1.79	1.24	1.67	.44	.38	.57
IN.	.20	.37	.33	.29	1.69	1.27	2.00	1.43	1.86	.51	.43	.63

CAL YR 1980 TOTAL 463277 MEAN 1266 MAX 12700 MIN 136 CFSM 1.12 IN 15.31
WTR YR 1981 TOTAL 333455 MEAN 914 MAX 7430 MIN 110 CFSM .81 IN 11.02

03527000 CLINCH RIVER AT SPEERS FERRY, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1931, 1950, 1952, 1965-67, 1969-76, 1978 to August 1981 (discontinued).

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1949 to September 1950, November 1964 to September 1967.

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT												
08...	1120	174	385	7.2	12.5	10.0	--	--	--	--	--	--
DEC												
04...	0915	356	310	7.3	3.0	14.0	--	--	--	--	--	--
JAN												
14...	0835	203	345	8.0	.5	13.8	--	--	--	--	--	--
FEB												
24...	0830	2800	242	8.0	7.0	11.0	--	--	--	--	--	--
APR												
07...	0815	1940	184	7.4	11.0	9.2	--	--	--	--	--	--
20...	1730	4390	--	--	--	--	--	--	--	--	--	--
21...	0820	6190	--	--	--	--	--	--	--	--	--	--
21...	1220	6310	--	--	--	--	--	--	--	--	--	--
21...	1450	6310	--	--	--	--	--	--	--	--	--	--
22...	1020	4510	--	--	--	--	--	--	--	--	--	--
22...	1335	4180	--	--	--	--	--	--	--	--	--	--
MAY												
19...	0840	659	280	8.5	18.0	9.0	--	--	--	--	--	--
JUL												
07...	0800	923	318	8.2	23.0	7.5	--	--	--	--	--	--
AUG												
25...	0820	227	345	8.3	22.0	10.8	160	37	38	16	7.2	2.2

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
OCT												
08...	142	37	--	--	--	206	--	--	--	--	--	--
DEC												
04...	111	34	--	--	--	173	--	--	--	--	--	--
JAN												
14...	137	33	--	--	--	206	--	--	--	--	--	--
FEB												
24...	84	25	--	--	--	143	--	--	--	--	--	--
APR												
07...	78	27	--	--	--	133	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	103	29	--	--	--	154	--	--	--	--	--	--
JUL												
07...	115	34	--	--	--	178	--	--	--	--	--	--
AUG												
25...	120	38	6.5	.1	5.3	227	.84	.040	2	<1	100	1

< Actual value is known to be less than the value shown.

03527000 CLINCH RIVER AT SPEERS FERRY, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
OCT												
08...	--	--	--	--	--	--	280	20	--	--	--	30
DEC												
04...	--	--	--	--	--	--	210	<10	--	--	--	10
JAN												
14...	--	--	--	--	--	--	130	10	--	--	--	20
FEB												
24...	--	--	--	--	--	--	720	20	--	--	--	70
APR												
07...	--	--	--	--	--	--	800	30	--	--	--	80
20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	--	--	--	--	--	--	330	20	--	--	--	30
JUL												
07...	--	--	--	--	--	--	890	20	--	--	--	100
AUG												
25...	1	10	10	10	5	6	510	10	8300	31	20	30

< Actual value is known to be less than the value shown.

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
OCT												
08...	10	--	--	--	--	--	--	--	--	--	--	10
DEC												
04...	10	--	--	--	--	--	--	--	--	--	--	13
JAN												
14...	10	--	--	--	--	--	--	--	--	--	--	1
FEB												
24...	10	--	--	--	--	--	--	--	--	--	--	38
APR												
07...	10	--	--	--	--	--	--	--	--	--	--	31
20...	--	--	--	--	--	--	--	--	--	--	--	104
21...	--	--	--	--	--	--	--	--	--	--	--	305
21...	--	--	--	--	--	--	--	--	--	--	--	424
21...	--	--	--	--	--	--	--	--	--	--	--	334
22...	--	--	--	--	--	--	--	--	--	--	--	191
22...	--	--	--	--	--	--	--	--	--	--	--	165
MAY												
19...	10	--	--	--	--	--	--	--	--	--	--	13
JUL												
07...	<10	--	--	--	--	--	--	--	--	--	--	70
AUG												
25...	10	750	<.1	<.01	<1	<1	<1	30	21	<.01	9.00	20

< Actual value is known to be less than the value shown.

03528000 CLINCH RIVER ABOVE TAZEWELL, TN

LOCATION.--Lat 36°25'30", long 83°23'54", Claiborne County, Hydrologic Unit 06010205, on right bank 0.4 mi (0.6 km) upstream from Grissom Island, 4.6 mi (7.4 km) downstream from Big War Creek, 10 mi (16 km) east of Tazewell, and at mile 159.8 (257.1 km).

DRAINAGE AREA.--1,474 mi² (3,818 km²).

PERIOD OF RECORD.--October 1918 to current year. Prior to April 1919 monthly discharge only, published in WSP 1306. Published as "near Lone Mountain" October 1918 to September 1927, as "near Tazewell" August 1927 to December 1936, and as "above Tazewell" July 1935 to current year. Gage-height record "near Tazewell" January 1937 to July 1941.

REVISED RECORDS.--WSP 803: Drainage area at site "near Tazewell." WSP 1306: Drainage area at site "near Lone Mountain." WSP 1336: 1928.

GAGE.--Water-stage recorder. Datum of gage is 1,060.7 ft (323.30 m) National Geodetic Vertical Datum of 1929. Apr. 1, 1919, to Sept. 30, 1927, nonrecording gage on railroad bridge 23.3 mi (37.5 km) downstream at datum 102.7 ft (31.30 m) lower. Aug. 8, 1927, to July 16, 1941, water-stage recorder at site 8.0 mi (12.9 km) downstream at datum 47.2 ft (14.39 m) lower. Water-stage recorder at present site and datum since July 29, 1935.

REMARKS.--Records good.

AVERAGE DISCHARGE.--63 years, 2,101 ft³/s (59.50 m³/s), 19.36 in/yr (492 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 98,100 ft³/s (2,780 m³/s) Apr. 5, 1977, gage height, 29.32 ft (8.937 m), from floodmarks; minimum, 108 ft³/s (3.06 m³/s) Sept. 11, 1925; minimum gage height at present site and datum, 0.33 ft (0.101 m) Sept. 20, 1955.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1862 reached a stage of about 24 ft (7.3 m), present site and datum, from information by local resident, discharge, about 66,000 ft³/s (1,870 m³/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,100 ft³/s (314 m³/s), at 2000 hours June 7, gage height, 8.41 ft (2.563 m), no peak above base of 14,000 ft³/s (396 m³/s); minimum, 206 ft³/s (5.83 m³/s) Sept. 1; minimum gage height, 0.68 ft (0.207 m) Oct. 20-22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	272	290	642	360	553	1530	2480	1400	2910	639	366	242
2	266	269	550	355	2750	1360	2130	1260	3130	1310	350	271
3	250	252	491	352	4370	1240	1890	1150	4180	960	326	242
4	246	250	444	345	3030	1150	1700	1040	4660	912	312	263
5	253	251	409	320	1900	1590	2090	936	3510	730	294	298
6	251	253	377	327	1290	2950	2980	865	3670	687	303	426
7	246	246	357	280	1090	3700	2840	811	9200	1160	345	1240
8	242	246	341	301	991	3280	2350	759	8980	1460	1610	1020
9	237	245	362	298	887	2500	1990	716	6230	1000	1960	560
10	235	241	475	340	1090	1980	1840	680	4180	819	1580	471
11	233	233	560	413	3690	1650	1820	687	3080	680	944	393
12	230	229	557	314	5840	1430	1970	716	2410	618	694	336
13	227	227	527	333	5850	1260	1850	730	2000	592	530	298
14	225	225	497	295	4520	1130	1710	716	1710	612	448	271
15	223	225	461	273	1980	1020	1930	716	1960	530	409	781
16	221	225	424	273	1630	958	1830	774	1730	512	482	3760
17	221	231	396	381	1500	944	1860	796	1410	653	524	4500
18	221	286	370	378	1930	981	2260	737	1170	912	1240	2850
19	221	352	350	340	2780	1140	3590	928	1020	737	694	1700
20	220	455	333	254	3150	1120	5520	1790	912	618	488	1140
21	218	470	309	342	3510	1050	7700	5200	842	572	448	842
22	233	447	272	405	3460	997	7130	4640	781	518	371	680
23	230	407	258	464	3000	1030	4720	2820	730	471	326	572
24	227	497	281	513	2810	1160	3650	2030	659	448	298	494
25	225	858	312	555	3150	1250	3210	1580	612	471	280	442
26	236	1320	348	533	2720	1440	2810	1290	592	431	263	403
27	266	998	324	495	2180	1610	2390	1100	625	393	250	371
28	341	905	333	488	1790	1580	2030	1230	612	376	237	345
29	399	884	329	543	---	1440	1760	2150	646	403	225	326
30	397	777	338	581	---	1860	1550	5260	548	426	218	312
31	332	---	351	577	---	2560	---	4150	---	393	214	---
TOTAL	7844	12794	12378	12028	73441	48890	83580	49657	74699	21043	17029	25849
MEAN	253	426	399	388	2623	1577	2786	1602	2490	679	549	862
MAX	399	1320	642	581	5850	3700	7700	5260	9200	1460	1960	4500
MIN	218	225	258	254	553	944	1550	680	548	376	214	242
CFSM	.17	.29	.27	.26	1.78	1.07	1.89	1.09	1.69	.46	.37	.59
IN.	.20	.32	.31	.30	1.85	1.23	2.11	1.25	1.89	.53	.43	.65

CAL YR 1980 TOTAL 611432 MEAN 1671 MAX 17700 MIN 218 CFSM 1.13 IN 15.43
WTR YR 1981 TOTAL 439232 MEAN 1203 MAX 9200 MIN 214 CFSM .82 IN 11.09

03529500 POWELL RIVER AT BIG STONE GAP, VA

LOCATION.--Lat 36°52'08", long 82°46'32", Wise County, Hydrologic Unit 06010206, on right bank 10 ft (3 m) upstream from bridge on U.S. Highway 23 at Big Stone Gap, 1 mi (2 km) upstream from South Fork Powell River, 2.5 mi (4.0 km) downstream from Pigeon Creek, and at mile 179.2 (288.3 km).

DRAINAGE AREA.--112 mi² (290 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1944 to September 1959, October 1959 to September 1977 (annual maximum only), October 1978 to September 1981 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

REVISED RECORDS.--WSP 1053: Drainage area. WSP 1276: 1948. WSP 1436: 1949(M), 1950(P), 1951-53(M), 1955(P).

GAGE.--Water-stage recorder. Datum of gage is 1,459.07 ft (444.725 m) National Geodetic Vertical Datum of 1929. Prior to Apr. 27, 1948, staff gage, and Oct. 1, 1959, to Sept. 30, 1977, crest-stage gage, at same site and datum.

REMARKS.--Records good.

AVERAGE DISCHARGE.--18 years, 202 ft³/s (5.721 m³/s), 24.49 in/yr (622 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,000 ft³/s (680 m³/s) Apr. 5, 1977, gage height, 16.50 ft (5.029 m), from rating curve extended above 1,900 ft³/s (54 m³/s) on basis of slope-area measurements at gage heights 9.67 ft (2.947 m), 10.39 ft (3.167 m), and 16.50 ft (5.029 m); minimum, 4.0 ft³/s (0.11 m³/s) Sept. 16, 17, 19, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,600 ft³/s (45 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Feb. 10	2300	1980	56.1	4.44	1.353	June 6	2100	*2040	57.8	4.50	1.372

Minimum discharge, 9.3 ft³/s (0.26 m³/s) Jan. 5, gage height, 0.95 ft (0.290 m), result of freezeup; minimum daily, 12 ft³/s (0.34 m³/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	21	43	34	64	141	274	166	128	76	34	38
2	24	21	39	32	603	126	225	152	167	141	32	30
3	27	19	38	28	235	116	195	139	134	74	32	31
4	24	32	32	25	146	146	174	127	126	61	31	40
5	22	28	32	12	117	319	355	120	117	64	29	30
6	21	23	30	24	93	422	358	115	559	132	142	30
7	21	21	29	28	79	306	287	111	1060	96	119	41
8	20	21	28	23	84	234	241	104	551	82	435	38
9	20	22	60	20	67	193	253	99	350	66	135	37
10	21	20	78	17	407	167	234	96	263	57	91	27
11	20	19	59	15	1380	149	222	108	207	52	74	25
12	18	17	50	13	525	136	203	95	168	52	77	24
13	17	17	44	18	289	128	186	88	148	46	61	24
14	18	18	39	23	210	117	189	85	132	59	53	23
15	18	21	36	24	167	108	200	104	119	66	53	284
16	18	22	37	20	151	177	183	84	108	111	161	300
17	19	27	33	17	275	184	277	76	98	87	151	127
18	19	87	30	16	335	176	792	78	91	61	76	83
19	22	44	28	18	292	164	631	279	85	57	63	67
20	19	29	24	23	332	150	1070	322	83	63	55	55
21	18	25	16	36	302	136	742	218	85	64	51	50
22	17	24	20	35	249	140	467	158	78	52	46	44
23	19	30	27	33	271	158	386	128	71	43	43	43
24	18	156	40	31	248	168	371	110	64	40	43	37
25	36	108	32	30	213	221	315	98	64	43	41	37
26	32	69	25	34	184	219	278	92	68	37	37	34
27	23	81	21	49	159	210	246	94	57	35	37	31
28	22	79	27	51	146	189	218	118	52	42	32	31
29	21	64	30	45	---	169	201	130	50	83	31	29
30	20	50	42	46	---	315	183	119	52	45	31	29
31	21	---	34	32	---	319	---	129	---	37	30	---
TOTAL	660	1215	1103	852	7623	5903	9956	3942	5335	2024	2326	1719
MEAN	21.3	40.5	35.6	27.5	272	190	332	127	178	65.3	75.0	57.3
MAX	36	156	78	51	1380	422	1070	322	1060	141	435	300
MIN	17	17	16	12	64	108	174	76	50	35	29	23
CFSM	.19	.36	.32	.25	2.43	1.70	2.96	1.13	1.59	.58	.67	.51
IN.	.22	.40	.37	.28	2.53	1.96	3.31	1.31	1.77	.67	.77	.57

CAL YR 1980 TOTAL 55784 MEAN 152 MAX 2560 MIN 16 CFSM 1.36 IN 18.53
WTR YR 1981 TOTAL 42658 MEAN 117 MAX 1380 MIN 12 CFSM 1.05 IN 14.17

03529500 POWELL RIVER AT BIG STONE GAP, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1978 to August 1981 (discontinued).

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1949 to September 1950.
WATER TEMPERATURES: October 1949 to September 1950.

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)
OCT									
07...	0840	21	549	7.6	9.5	10.0	146	130	350
DEC									
03...	1415	37	450	8.2	5.5	15.1	103	100	267
JAN									
13...	1035	18	576	8.1	.0	14.5	150	130	351
FEB									
24...	1555	242	298	7.3	6.0	11.2	57	77	185
APR									
07...	1430	280	241	7.9	12.0	10.9	55	59	170
MAY									
20...	0810	353	285	8.1	13.0	9.5	51	72	170
JUL									
07...	1545	111	408	8.3	24.0	7.7	81	100	252
AUG									
25...	1615	40	585	9.2	24.5	9.5	140	--	--

DATE	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)
OCT									
07...	--	--	--	--	--	260	<10	--	--
DEC									
03...	--	--	--	--	--	410	10	--	--
JAN									
13...	--	--	--	--	--	300	<10	--	--
FEB									
24...	--	--	--	--	--	770	<10	--	--
APR									
07...	--	--	--	--	--	420	20	--	--
MAY									
20...	--	--	--	--	--	7300	20	--	--
JUL									
07...	--	--	--	--	--	2700	10	--	--
AUG									
25...	<1	<1	6	<10	9	--	--	7400	<10

< Actual value is known to be less than the value shown.

03529500 POWELL RIVER AT BIG STONE GAP, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
OCT								
07...	40	20	--	--	--	--	--	--
DEC								
03...	70	70	--	--	--	--	--	--
JAN								
13...	130	120	--	--	--	--	--	--
FEB								
24...	170	140	--	--	--	--	--	--
APR								
07...	90	60	--	--	--	--	--	--
MAY								
20...	320	40	--	--	--	--	--	--
JUL								
07...	170	30	--	--	--	--	--	--
AUG								
25...	--	--	520	<.01	<1	30	77.0	32

< Actual value is known to be less than the value shown.

03530500 NORTH FORK POWELL RIVER AT PENNINGTON GAP, VA

LOCATION.--Lat 36°46'26", long 83°01'59", Lee County, Hydrologic Unit 06010206, near right bank on downstream side of bridge on State Highway 621, 0.8 mi (1.3 km) north of Pennington Gap, 1.3 mi (2.1 km) downstream from Straight Creek, and at mile 4.7 (7.6 km).

DRAINAGE AREA.--71.4 mi^2 (184.9 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1944 to September 1951, October 1951 to September 1977 (annual maximum only), October 1978 to September 1981 (discontinued as a continuous-record station; converted to a crest-stage partial-record station).

REVISED RECORDS.--WSP 1436: 1945-48, 1949(M), 1950, 1951(M).

GAGE.--Water-stage recorder. Datum of gage is 1,363.02 ft (415.448 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 7, 1949, staff gage, Dec. 7, 1949, to Sept. 30, 1951, wire-weight gage, and Oct. 1, 1951, to Sept. 30, 1977, crest-stage gage, at same site and datum.

REMARKS.--Records good. Prior to October 1951, diurnal fluctuation at low flow caused by power plant 2.1 mi (3.4 km) above station.

AVERAGE DISCHARGE.--10 years, 127 ft^3/s (3.597 m^3/s), 24.15 in/yr (613 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,000 ft^3/s (481 m^3/s) Apr. 5, 1977, gage height, 16.14 ft (4.919 m), from rating curve extended above 710 ft^3/s (20 m^3/s) on basis of slope-area measurements at gage heights 8.70 ft (2.652 m), 9.45 ft (2.880 m), 12.1 ft (3.69 m), and 16.14 ft (4.919 m); no flow Sept. 4, 5, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,290 ft^3/s (93.2 m^3/s) at 1910 hours June 6, gage height, 7.45 ft (2.271 m), no other peak above base of 1,000 ft^3/s (28 m^3/s); minimum daily, 3.8 ft^3/s (0.11 m^3/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.8	5.6	13	12	37	73	183	70	40	93	12	9.0
2	6.6	5.8	12	11	533	61	142	62	85	71	11	8.5
3	7.5	5.2	12	10	310	52	118	53	65	36	10	8.5
4	6.8	12	10	8.0	252	77	101	47	50	25	9.5	8.6
5	6.0	9.3	9.7	3.8	130	325	341	43	42	26	9.0	8.5
6	5.0	7.3	9.0	6.5	58	313	308	40	796	65	42	13
7	4.8	6.1	8.7	7.0	46	202	203	38	958	77	35	36
8	4.9	5.6	8.4	6.8	48	140	151	34	331	40	178	61
9	5.0	5.5	40	6.0	41	108	175	30	197	28	56	23
10	6.0	5.4	74	5.0	148	90	190	29	138	22	30	14
11	5.4	5.3	37	4.5	789	80	230	51	104	19	22	11
12	5.0	5.2	25	4.0	600	70	200	37	81	17	20	9.5
13	4.5	5.2	20	4.2	350	62	159	30	69	16	18	8.9
14	4.7	5.3	16	5.5	125	55	129	26	54	21	16	8.7
15	5.0	5.4	14	7.0	94	46	108	38	44	20	19	174
16	5.1	5.9	13	6.0	80	81	90	30	36	21	23	177
17	5.2	11	12	5.5	114	98	115	25	31	30	19	61
18	5.4	40	11	5.2	141	93	283	24	27	21	18	35
19	6.0	18	10	5.6	144	85	289	229	24	31	17	24
20	5.2	10	8.5	7.4	149	78	687	206	23	21	16	20
21	5.0	8.5	5.5	20	142	67	455	127	31	20	15	17
22	4.5	7.3	6.0	25	123	70	262	90	29	18	13	15
23	4.8	10	7.4	24	184	108	203	68	23	15	11	13
24	5.0	82	18	23	180	163	190	53	22	20	9.0	12
25	13	44	20	21	135	155	160	44	21	27	8.0	11
26	9.0	22	14	19	107	134	136	39	20	20	7.5	10
27	6.8	24	7.0	21	86	114	116	37	18	18	7.0	9.8
28	5.9	23	8.0	22	76	93	98	45	16	24	6.8	9.4
29	5.6	18	12	19	---	82	89	40	17	31	6.5	9.0
30	5.5	15	14	17	---	219	81	32	28	20	6.2	8.5
31	5.4	---	14	9.9	---	232	---	36	---	16	7.0	---
TOTAL	181.4	432.9	489.2	351.9	5222	3626	5992	1753	3420	929	677.5	833.9
MEAN	5.85	14.4	15.8	11.4	187	117	200	56.5	114	30.0	21.9	27.8
MAX	13	82	74	25	789	325	687	229	958	93	178	177
MIN	4.5	5.2	5.5	3.8	37	46	81	24	16	15	6.2	8.5
CFSM	.08	.20	.22	.16	2.62	1.64	2.80	.79	1.60	.42	.31	.39
IN.	.09	.23	.25	.18	2.72	1.89	3.12	.91	1.78	.48	.35	.43

CAL YR 1980 TOTAL 32261.0 MEAN 88.1 MAX 1780 MIN 4.5 CFSM 1.23 IN 16.81
WTR YR 1981 TOTAL 23908.8 MEAN 65.5 MAX 958 MIN 3.8 CFSM .92 IN 12.46

03530500 NORTH FORK POWELL RIVER AT PENNINGTON GAP, VA--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1978 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS, NONCAR-BONATE (MG/L CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
OCT												
07...	1115	4.8	785	7.2	10.0	11.0	210	160	51	21	69	--
DEC												
03...	1145	11	390	7.4	4.0	--	--	--	--	--	--	--
JAN												
13...	1330	4.2	388	7.3	1.0	14.1	--	--	--	--	--	--
FEB												
24...	1315	175	177	7.0	6.0	11.0	--	--	--	--	--	--
APR												
07...	1315	194	155	7.4	10.5	10.8	--	--	--	--	--	--
MAY												
19...	1355	301	228	7.7	16.0	9.3	--	--	--	--	--	--
JUL												
07...	1430	68	255	7.9	23.0	8.0	--	--	--	--	--	--
AUG												
25...	1340	8.0	428	8.6	24.5	7.9	170	110	42	16	18	2.5

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
OCT												
07...	54	290	4.6	--	--	524	--	--	--	--	--	--
DEC												
03...	48	130	--	--	--	250	--	--	--	--	--	--
JAN												
13...	58	120	--	--	--	248	--	--	--	--	--	--
FEB												
24...	16	52	--	--	--	104	--	--	--	--	--	--
APR												
07...	15	44	--	--	--	100	--	--	--	--	--	--
MAY												
19...	23	73	--	--	--	144	--	--	--	--	--	--
JUL												
07...	33	74	--	--	--	160	--	--	--	--	--	--
AUG												
25...	60	130	4.3	.1	3.9	272	<.01	<.010	1	<1	100	1

< Actual value is known to be less than the value shown.

03530500 NORTH FORK POWELL RIVER AT PENNINGTON GAP, VA--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
OCT												
07...	--	--	--	--	--	--	190	<10	--	--	--	270
DEC												
03...	--	--	--	--	--	--	580	<10	--	--	--	290
JAN												
13...	--	--	--	--	--	--	170	10	--	--	--	190
FEB												
24...	--	--	--	--	--	--	780	20	--	--	--	310
APR												
07...	--	--	--	--	--	--	560	30	--	--	--	200
MAY												
19...	--	--	--	--	--	--	11000	30	--	--	--	630
JUL												
07...	--	--	--	--	--	--	2900	20	--	--	--	220
AUG												
25...	1	<10	8	10	5	12	530	<10	11000	10	20	60

< Actual value is known to be less than the value shown.

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
OCT												
07...	250	--	--	--	--	--	--	--	--	--	--	--
DEC												
03...	300	--	--	--	--	--	--	--	--	--	--	--
JAN												
13...	160	--	--	--	--	--	--	--	--	--	--	--
FEB												
24...	250	--	--	--	--	--	--	--	--	--	--	--
APR												
07...	190	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	350	--	--	--	--	--	--	--	--	--	--	--
JUL												
07...	90	--	--	--	--	--	--	--	--	--	--	--
AUG												
25...	20	1000	<.1	<.02	<1	<1	<1	10	51	<.01	14.0	19

< Actual value is known to be less than the value shown.

03531500 POWELL RIVER NEAR JONESVILLE, VA

LOCATION.--Lat 36°39'43", long 83°05'42", Lee County, Hydrologic Unit 06010206, on right bank 175 ft (53 m) downstream from highway bridge, 2 mi (3 km) southeast of Jonesville, 10 mi (16 km) upstream from Wallen Creek, and at mile 143.1 (230.2 km).

DRAINAGE AREA.--319 mi² (826 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1931 to current year. Monthly discharge only for some periods, published in WSP 1306.

REVISED RECORDS.--WSP 823: Drainage area. WSP 1033: 1932-44. WSP 1436: 1946(M), 1948(M).

GAGE.--Water-stage recorder. Datum of gage is 1,259.08 ft (383.768 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good.

AVERAGE DISCHARGE.--50 years, 541 ft³/s (15.32 m³/s), 23.03 in/yr (585 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,000 ft³/s (1,610 m³/s) Apr. 5, 1977, gage height, 44.32 ft (13.509 m), from floodmark, from rating curve *extended above 20,000* ft³/s (570 m³/s) on basis of slope-area measurement of peak flow; minimum, 17 ft³/s (0.48 m³/s) Sept. 19, 20, 1954, and as result of storage behind temporary dam Oct. 18, 1961; minimum gage height, 0.68 ft (0.207 m) Oct. 18, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,910 ft³/s (196 m³/s) at 0600 hours June 7, gage height, 13.02 ft (3.968 m), no other peak above base of 5,000 ft³/s (140 m³/s); minimum daily, 30 ft³/s (0.85 m³/s) Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	57	48	106	80	85	349	830	353	243	384	85	69
2	55	47	92	75	1750	305	684	309	404	391	76	74
3	54	46	87	70	1080	272	544	279	539	294	78	70
4	54	49	83	60	478	261	460	246	422	166	74	72
5	55	63	75	30	349	910	905	225	357	137	70	75
6	51	75	72	51	258	1340	1260	212	836	229	94	70
7	48	63	70	57	213	1020	964	206	5010	541	321	81
8	47	55	68	58	202	713	736	193	1910	329	922	138
9	46	52	78	50	189	539	661	174	1050	209	634	121
10	45	50	250	45	240	441	748	166	720	160	337	89
11	45	50	206	37	3480	374	742	190	540	130	225	75
12	44	47	146	35	2120	329	701	190	417	117	177	66
13	43	47	117	54	1020	294	607	163	353	113	166	60
14	42	46	104	54	684	272	523	148	300	102	133	59
15	42	47	90	56	493	239	493	160	258	106	117	148
16	42	49	83	57	404	257	436	171	226	124	135	910
17	42	54	81	50	493	418	441	143	201	219	257	433
18	46	98	76	45	836	374	1160	133	177	166	225	227
19	52	181	72	52	802	353	1640	387	159	126	138	144
20	53	104	60	55	864	321	2220	841	146	124	110	113
21	53	78	42	76	893	290	2400	586	148	110	106	95
22	47	68	45	117	718	272	1400	409	155	113	98	83
23	45	63	57	111	790	366	1020	309	134	90	89	75
24	44	138	68	97	858	508	970	246	119	83	81	71
25	50	432	90	89	678	518	841	212	112	126	78	65
26	68	206	70	84	539	528	701	190	109	102	78	63
27	81	146	60	86	436	493	596	174	112	89	74	62
28	62	181	65	100	370	441	503	202	97	85	70	60
29	53	166	70	108	---	387	441	232	90	143	68	58
30	50	128	74	105	---	639	404	229	86	184	64	57
31	49	---	81	90	---	1080	---	229	---	108	62	---
TOTAL	1565	2877	2738	2134	21322	14903	26031	7907	15430	5400	5242	3783
MEAN	50.5	95.9	88.3	68.8	762	481	868	255	514	174	169	126
MAX	81	432	250	117	3480	1340	2400	841	5010	541	922	910
MIN	42	46	42	30	85	239	404	133	86	83	62	57
CFSM	.16	.30	.28	.22	2.39	1.51	2.72	.80	1.61	.55	.53	.40
IN.	.18	.34	.32	.25	2.49	1.74	3.04	.92	1.80	.63	.61	.44

CAL YR 1980 TOTAL 144266 MEAN 394 MAX 7270 MIN 42 CFSM 1.24 IN 16.82
WTR YR 1981 TOTAL 109332 MEAN 300 MAX 5010 MIN 30 CFSM .94 IN 12.75

03531500 POWELL RIVER NEAR JONESVILLE--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1950, 1979 to August 1981 (discontinued).

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS, NONCARBONATE (MG/L CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
OCT												
07...	1400	48	475	8.2	13.0	9.8	--	--	--	--	--	--
DEC												
03...	1315	67	340	7.5	5.0	14.2	--	--	--	--	--	--
JAN												
13...	1520	57	413	8.2	.5	14.7	--	--	--	--	--	--
FEB												
24...	1055	870	242	7.1	8.0	10.2	--	--	--	--	--	--
APR												
07...	1030	970	197	7.5	10.0	9.9	--	--	--	--	--	--
20...	1840	3390	--	--	--	--	--	--	--	--	--	--
21...	0930	3120	--	--	--	--	--	--	--	--	--	--
22...	1200	1370	--	--	--	--	--	--	--	--	--	--
MAY												
19...	1145	305	385	8.1	18.0	8.1	--	--	--	--	--	--
JUL												
07...	1110	736	372	7.8	20.5	7.9	--	--	--	--	--	--
AUG												
25...	1110	76	420	8.3	23.0	7.5	180	64	45	16	19	2.4

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)
OCT												
07...	134	88	--	--	--	295	--	--	--	--	--	--
DEC												
03...	87	64	--	--	--	201	--	--	--	--	--	--
JAN												
13...	124	71	--	--	--	246	--	--	--	--	--	--
FEB												
24...	59	45	--	--	--	148	--	--	--	--	--	--
APR												
07...	50	41	--	--	--	120	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	97	81	--	--	--	230	--	--	--	--	--	--
JUL												
07...	119	41	--	--	--	215	--	--	--	--	--	--
AUG												
25...	110	80	4.0	.1	4.0	260	1.0	.050	3	<1	100	1

< Actual value is known to be less than the value shown.

03531500 POWELL RIVER NEAR JONESVILLE--Continued

WATER QUALITY DATA, OCTOBER 1980 TO AUGUST 1981

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
OCT												
07...	--	--	--	--	--	--	430	10	--	--	--	50
DEC												
03...	--	--	--	--	--	--	270	<10	--	--	--	20
JAN												
13...	--	--	--	--	--	--	190	10	--	--	--	20
FEB												
24...	--	--	--	--	--	--	1400	30	--	--	--	120
APR												
07...	--	--	--	--	--	--	940	30	--	--	--	110
20...	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	--	--	--	--	--	--	--	--	--	--	--
22...	--	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	--	--	--	--	--	--	270	10	--	--	--	50
JUL												
07...	--	--	--	--	--	--	3500	20	--	--	--	250
AUG												
25...	1	10	8	<10	3	5	680	30	8600	15	10	70

< Actual value is known to be less than the value shown.

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
OCT												
07...	10	--	--	--	--	--	--	--	--	--	--	13
DEC												
03...	30	--	--	--	--	--	--	--	--	--	--	14
JAN												
13...	30	--	--	--	--	--	--	--	--	--	--	2
FEB												
24...	50	--	--	--	--	--	--	--	--	--	--	773
APR												
07...	30	--	--	--	--	--	--	--	--	--	--	41
20...	--	--	--	--	--	--	--	--	--	--	--	560
21...	--	--	--	--	--	--	--	--	--	--	--	315
22...	--	--	--	--	--	--	--	--	--	--	--	103
MAY												
19...	20	--	--	--	--	--	--	--	--	--	--	8
JUL												
07...	<10	--	--	--	--	--	--	--	--	--	--	324
AUG												
25...	20	420	<.1	<.01	<1	<1	<1	20	31	<.01	5.00	49

< Actual value is known to be less than the value shown.

03532000 POWELL RIVER NEAR ARTHUR, TN

LOCATION.--Lat 36°32'30", long 83°37'49", Claiborne County, Hydrologic Unit 06010206, on left bank 500 ft (150 m) upstream from bridge on U.S. Highway 25E, 2.3 mi (3.7 km) east of Arthur, 2.4 mi (3.9 km) downstream from Indian Creek, and at mile 65.4 (105.2 km).

DRAINAGE AREA.--685 mi^2 (1,774 km^2).

PERIOD OF RECORD.--October 1919 to current year. Gage-height records collected at same site December 1892 to August 1893, September 1904 to March 1925 are in reports of the National Weather Service (published as "near Tazewell").

REVISED RECORDS.--WSP 1336: 1920, 1921(M), 1923.

GAGE.--Water-stage recorder. Datum of gage is 1,043.84 ft (318.162 m) Tennessee River Survey datum. Prior to July 23, 1927, nonrecording gage, and July 23, 1927, to Sept. 30, 1970, water-stage recorder, at same site at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good.

AVERAGE DISCHARGE.--62 years, 1,145 ft^3/s (32.43 m^3/s), 22.70 in/yr (577 mm/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 59,500 ft^3/s (1,690 m^3/s) Apr. 6, 1977, gage height, 38.96 ft (11.875 m), from floodmark; minimum, 47 ft^3/s (1.33 m^3/s) Jan. 6, 1940, result of freezeup; minimum daily, 60 ft^3/s (1.70 m^3/s) Sept. 23, 1955; minimum gage height, 1.32 ft (0.402 m) Sept. 6, 1975, result of dredging.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in March 1826 reached a stage of 29.5 ft (8.99 m), present datum, discharge, 34,000 ft^3/s (963 m^3/s), and flood of Jan. 29, 1918, reached a stage of 29.2 ft (8.90 m), present datum, discharge, 33,000 ft^3/s (935 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 8,080 ft^3/s (229 m^3/s) at 0600 hours June 8, gage height, 12.63 ft (3.850 m), no peak above base of 9,000 ft^3/s (255 m^3/s); minimum, 74 ft^3/s (2.10 m^3/s) Jan. 18, gage height, 1.41 ft (0.430 m), result of freezeup.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	126	314	168	246	797	1730	706	411	252	307	190
2	139	119	266	170	1990	732	1400	646	601	268	252	193
3	139	115	233	173	2800	679	1170	589	678	650	240	205
4	139	122	209	164	1880	643	995	543	824	586	219	215
5	138	125	195	149	988	946	1440	496	678	435	204	207
6	132	126	185	141	714	1810	1860	460	833	391	306	200
7	130	127	174	142	601	2020	1970	433	4180	389	393	207
8	129	138	165	127	543	1560	1540	407	6720	800	3190	261
9	123	147	215	134	505	1200	1270	389	2990	764	1960	255
10	119	132	354	131	571	979	1160	365	1820	548	1190	271
11	114	122	398	118	1840	845	1180	361	1340	441	785	250
12	108	115	468	133	4320	754	1110	358	1050	378	739	211
13	104	111	367	133	2900	684	1070	365	871	349	541	187
14	102	110	300	136	1630	629	971	345	754	320	441	171
15	102	110	256	129	1210	582	903	328	665	312	393	212
16	102	110	231	127	984	570	828	312	601	315	371	733
17	102	122	212	118	895	565	821	316	559	416	408	1230
18	102	216	194	107	988	654	1000	309	505	384	382	871
19	110	250	183	124	1300	662	1480	358	450	499	450	590
20	112	240	173	130	1380	628	3360	496	419	385	367	438
21	110	295	157	169	1410	592	4850	932	403	374	532	358
22	112	217	150	281	1380	571	3710	776	368	336	508	310
23	114	182	142	317	1420	721	2310	612	362	288	378	275
24	114	402	149	309	1550	893	1700	496	351	273	318	246
25	164	517	164	276	1450	946	1470	418	326	257	283	225
26	178	550	194	242	1210	896	1260	365	344	253	258	211
27	153	528	206	223	1020	880	1090	351	328	265	239	200
28	143	438	198	215	885	826	950	386	302	266	227	189
29	162	360	183	210	---	767	846	365	280	341	215	181
30	159	353	178	225	---	1160	768	358	256	306	205	173
31	140	---	172	238	---	1570	---	393	---	314	196	---
TOTAL	3943	6625	6985	5459	38610	27761	46212	14034	30269	12155	16497	9465
MEAN	127	221	225	176	1379	896	1540	453	1009	392	532	316
MAX	178	550	468	317	4320	2020	4850	932	6720	800	3190	1230
MIN	102	110	142	107	246	565	768	309	256	252	196	171
CFSM	.19	.32	.33	.26	2.01	1.31	2.25	.66	1.47	.57	.78	.46
IN.	.21	.36	.38	.30	2.10	1.51	2.51	.76	1.64	.66	.90	.51

CAL YR 1980 TOTAL 307045 MEAN 839 MAX 12300 MIN 102 CFSM 1.23 IN 16.67
WTR YR 1981 TOTAL 218015 MEAN 597 MAX 6720 MIN 102 CFSM .87 IN 11.84

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at low-flow partial-record sites and at miscellaneous sites and for special studies are given in separate tables.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations during water year 1981

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		POTOMAC RIVER BASIN					
01622400	Buffalo Branch tributary near Christian, Va.	Lat 38°11'55", long 79°13'10", Augusta County, at culvert on State Highway 42, 1.3 mi north of Christian. Datum of gage is 1,622.53 ft National Geodetic Vertical Datum of 1929.	0.49	1967-81	2-11-81 2-20-81	3.18 3.18	30 30
01629945	Chub Run near Stanley, Va.	Lat 38°34'31", long 78°27'32", Page County, at culvert on State Highway 689, 2.2 mi east of Stanley. Datum of gage is 1,023.05 ft National Geodetic Vertical Datum of 1929.	3.16	a1959-69, 1970-81	6- 4-81	1.43	95
01632970	Crooked Run near Mt. Jackson, Va.	Lat 38°45'44", long 78°41'06", Shenandoah County, at culvert on State Highway 263, 2.3 mi west of Mt. Jackson. Datum of gage is 962.84 ft National Geodetic Vertical Datum of 1929.	6.49	1972-81	10- 5-79 6-14-81	4.29 3.03	b537 216
01633650	Pughs Run near Woodstock, Va.	Lat 38°55'48", long 78°32'43", Shenandoah County, at culvert on State Highway 623, 4.0 mi northeast of Woodstock. Datum of gage is 1,027.27 ft National Geodetic Vertical Datum of 1929.	3.66	1972-81	5-21-81	3.79	50
01653000	Cameron Run at Alexandria, Va.	Lat 38°48'23", long 77°06'36", Fairfax County, at left downstream side of Southern Railway bridge, at Alexandria, and 800 ft downstream from confluence of Holmes Run and Backlick Run. Datum of gage is 31.07 ft National Geodetic Vertical Datum of 1929.	33.7	1955-80‡, 1981	7- 4-81	8.45	6,920
		GREAT WICOMICO RIVER BASIN					
01661600	Great Wicomico River near Horse Head, Va.	Lat 37°53'15", long 76°27'00", Northumberland County, at culvert on State Highway 604, 1.7 mi west of Horse Head.	6.98	1969-81	10-25-80	4.97	694
		RAPPAHANNOCK RIVER BASIN					
01665050	Pony Mountain Branch near Culpeper, Va.	Lat 38°27'04", long 77°57'24", Culpeper County, at culvert on State Highway 3, 2.7 mi southeast of Culpeper.	.30	a1958-69, 1970-81	8-30-81	1.71	58

‡ Operated as a continuous-record gaging station.
a Records furnished by U.S. Department of Agriculture, Soil Conservation Service.
b Revised.

Annual maximum discharge at crest-stage partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Dis-charge (ft^3/s)
		RAPPAHANNOCK RIVER BASIN--Continued					
01668300	Farmers Hall Creek near Champlain, Va.	Lat 38°00'05", long 76°58'40", Essex County, at culvert on U.S. Highway 17, 1.2 mi southeast of Champlain. Datum of gage is 42.10 ft National Geodetic Vertical Datum of 1929.	2.18	1966-81	5-19-81	3.35	27
		PIANKATANK RIVER BASIN					
01669800	My Ladys Swamp near Saluda, Va.	Lat 37°34'34", long 76°31'30", Middlesex County, at culvert on State Highway 629, 4.4 mi southeast of Saluda. Datum of gage is 4.16 ft National Geodetic Vertical Datum of 1929.	4.81	1969-81	10-25-80	4.91	129
		YORK RIVER BASIN					
01671615	Foster Creek near Ferncliff, Va.	Lat 37°57'35", long 78°11'20", Louisa County, at culvert on U.S. Highway 250, 4.6 mi northwest of Ferncliff. Datum of gage is 424.22 ft National Geodetic Vertical Datum of 1929.	.61	a1960-68, 1969-81	7- 6-81	3.98	169
01671650	Waldrop Creek near Louisa, Va.	Lat 38°00'08", long 78°04'22", Louisa County, at culvert on State Highway 632, 4.2 mi southwest of Louisa. Datum of gage is 361.41 ft National Geodetic Vertical Datum of 1929.	2.85	1969-81	7- 6-81	3.44	57
01671750	Harris Creek near Trevilians, Va.	Lat 38°01'02", long 78°03'06", Louisa County, at culvert on State Highway 632, 2.7 mi southeast of Trevilians.	3.31	1969-81	7- 6-81	3.51	186
01674200	Reedy Creek near Dawn, Va.	Lat 37°52'55", long 77°21'35", Caroline County, at bridge on U.S. Highway 301, 3.3 mi north of Dawn.	16.8	1950-69, 1972-81	7- 4-81	3.72	108
01674700	Aylett Creek at Aylett, Va.	Lat 37°47'05", long 77°06'23", King William County, at culvert on U.S. Highway 360 at Aylett. Datum of gage is 26.72 ft National Geodetic Vertical Datum of 1929.	6.17	1969-81	5-19-81	3.77	(*)
		JAMES RIVER BASIN					
02012950	Sweet Springs Creek tributary at Sweet Chalybeate, Va.	Lat 37°39'25", long 80°14'10", Allegheny County, at culvert on State Highway 311, 0.9 mi north of Sweet Chalybeate. Datum of gage is 1,926.94 ft National Geodetic Vertical Datum of 1929.	.66	1966-75, 1978-81	- -	b<4.14 <4.14	(*) (*)
02015600	Cowpasture River near Head Waters, Va.	Lat 38°19'30", long 79°26'14", Augusta County, at bridge on U.S. Highway 250, 1.2 mi west of Head Waters. Datum of gage is 1,985.65 ft National Geodetic Vertical Datum of 1929.	11.3	1949-81	-	<2.95	<108
02017300	Craig Creek at New Castle, Va.	Lat 37°30'06", long 80°06'18", Craig County, at bridge on State Highway 616, at New Castle. Datum of gage is 1,245.69 ft National Geodetic Vertical Datum of 1929.	112	1967-81	5-28-81	11.24	4,540
02017700	Craig Creek tributary near New Castle, Va.	Lat 37°33'21", long 79°59'52", Craig County, at culvert on State Highway 606, 7.1 mi northeast of New Castle.	2.05	1968-81	5-28-81	3.50	55

* Discharge not determined.
< Less than.
a Records furnished by U.S. Department of Agriculture, Soil Conservation Service.
b Revised.

Annual maximum discharge at crest-stage partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum Date	Annual Maximum Gage height (ft)	Annual Maximum Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued					
02018800	North Fork near Fincastle, Va.	Lat 37°32'07", long 79°56'03", Botetourt County, at culvert on State Highway 606, 3.9 mi northwest of Fincastle. Datum of gage is 1,248.65 ft National Geodetic Vertical Datum of 1929.	4.17	1968-81	5-28-81	6.44	519
02020100	Renick Run near Buchanan, Va.	Lat 37°35'27", long 79°38'04", Botetourt County, at culvert on Frontage Road of Interstate Highway 81, 4.8 mi northeast of Buchanan. Datum of gage is 1,261.85 ft National Geodetic Vertical Datum of 1929.	2.06	1967-81	5-28-81	3.50	150
02021700	Cedar Grove Branch near Rockbridge Baths, Va.	Lat 37°53'00", long 79°23'10", Rockbridge County, at culvert on State Highway 39, 1.8 mi southeast of Rockbridge Baths. Datum of gage is 1,041.22 ft National Geodetic Vertical Datum of 1929.	12.3	1967-81	-	c20.72	d1,050
02023300	South River near Steeles Tavern, Va.	Lat 37°55'50", long 79°09'55", Augusta County, at bridge on State Highway 608, 3 mi east of Steeles Tavern.	15.7	1951-81	-	<3.67	<685
02027700	Buffalo River tributary near Amherst, Va.	Lat 37°33'45", long 78°57'35", Amherst County, at culvert on U.S. Highway 60, 5.2 mi southeast of Amherst. Datum of gage is 583.66 ft National Geodetic Vertical Datum of 1929.	.46	1966-81	5-28-81	3.36	31
02030800	Stockton Creek near Afton, Va.	Lat 38°01'48", long 78°48'30", Albemarle County, at culvert on State Highway 6, 1.7 mi east of Afton. Datum of gage is 835.27 ft National Geodetic Vertical Datum of 1929.	2.80	1967-81	7- 4-81	4.52	70
02032200	Doyles River near White Hall, Va.	Lat 38°12'10", long 78°40'17", Albemarle County, at bridge on State Highway 810, 5.9 mi north of Whitehall. Datum of gage is 928.08 ft National Geodetic Vertical Datum of 1929.	6.70	1967-81	-	<10.10	(*)
02032300	Muddy Run near Stanardsville, Va.	Lat 38°14'05", long 78°37'02", Albemarle County, at bridge on State Highway 810, 11 mi southwest of Stanardsville. Datum of gage is 756.79 ft National Geodetic Vertical Datum of 1929.	3.36	1967-81	2-19-81	6.38	1,950
02032540	Haneytown Creek near Stanardsville, Va.	Lat 38°16'48", long 78°30'50", Greene County, at bridge on State Highway 810, 4.5 mi west of Stanardsville. Datum of gage is 616.34 ft National Geodetic Vertical Datum of 1929.	4.45	1967-81	-	<12.01	(*)
02032550	Lynch River at Nortonsville, Va.	Lat 38°14'16", long 78°32'32", Albemarle County, at bridge on State Highway 810, 7 mi southwest of Stanardsville. Datum of gage is 591.70 ft National Geodetic Vertical Datum of 1929.	13.6	1967-81	-	<12.00	<1,100
02032700	Schenks Branch at Charlottesville, Va.	Lat 38°02'32", long 78°28'30", Charlottesville City, at bridge just upstream from U.S. Highway 250 bypass. Datum of gage is 371.63 ft National Geodetic Vertical Datum of 1929.	1.34	1950-77, 1979-81	7- 4-81	5.49	(*)

* Discharge not determined.
< Less than.
c Affected by backwater from debris jam.
d Estimated based on percentage of constriction, furnished by Virginia Department of Highways and Transportation.

Annual maximum discharge at crest-stage partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Dis- charge (ft^3/s)
		JAMES RIVER BASIN--Continued					
02033300	Moores Creek near Charlottesville, Va.	Lat 38°00'25", long 78°34'25", Albemarle County, at culvert on access road, 150 ft north of U.S. Highway 29, and 4 mi southwest of Charlottesville.	3.52	1967-77, 1979-81	7- 4-81	13.97	200
02037800	Falling Creek near Midlothian, Va.	Lat 37°27'15", long 77°35'20", Chesterfield County, at bridge on State Highway 653, 4 mi southeast of Midlothian. Datum of gage is 170.06 ft National Geodetic Vertical Datum of 1929.	18.1	1951-81	7- 4-81	3.92	252
02040500	Flat Creek near Amelia, Va.	Lat 37°23'27", long 78°03'45", Amelia County, at bridge on State Highway 681, 6.0 mi northwest of Amelia.	73.0	1946-70, 1972-81	6- 7-81	5.52	(*)
02042250	Bailey Branch tributary at Spring Grove, Va.	Lat 37°10'29", long 76°59'13", Surry County, at culvert on State Highway 10, 1.0 mi northwest of Spring Grove. Datum of gage is 61.39 ft National Geodetic Vertical Datum of 1929.	.71	1967-81	6- 7-81	5.37	170
02042300	Horsepen Branch at Richmond, Va.	Lat 37°35'45", long 77°30'40", Henrico County, at culvert on U.S. Highway 250 (Broad Street), at Richmond.	1.35	1965-81	5-11-81	2.74	322
02042400	Jordans Branch at Richmond, Va.	Lat 37°35'10", long 77°29'55", Henrico County, at bridge on U.S. Highway 250 (Broad Street), at Richmond.	2.41	1965-81	-	<8.43	(*)
02042780	West Branch Long Hill Swamp near Lightfoot, Va.	Lat 37°18'50", long 77°46'01", James City County, at culvert on State Highway 612, 2.0 mi south of Lightfoot.	2.47	1970-76, 1978-81	10-25-80	3.35	68
		CHOWAN RIVER BASIN					
02044200	Falls Creek tributary near Victoria, Va.	Lat 37°02'04", long 78°10'26", Lunenburg County, at culvert on State Highway 49, 3.6 mi northeast of Victoria.	.34	1962-81	6- 7-81	6.35	173
02046500	Anderson Branch at Sussex, Va.	Lat 36°55'10", long 77°15'45", Sussex County, at bridge on State Highway 40, 1.0 mi east of Sussex. Datum of gage is 58.00 ft National Geodetic Vertical Datum of 1929.	5.35	1949-56♦, 1967-81	6- 7-81	5.86	197
02050050	Blackwater River tributary near Holland, Va.	Lat 36°38'44", long 76°51'29", Nansemond County, at culvert on State Highway 189, 4.9 mi southwest of Holland. Datum of gage is 29.25 ft National Geodetic Vertical Datum of 1929.	2.76	1967-81	6- 7-81	4.86	103
		ROANOKE RIVER BASIN					
02057700	Powder Mill Creek at Rocky Mount, Va.	Lat 37°00'26", long 79°52'25", Franklin County, at culvert on U.S. Highway 220 bypass at Rocky Mount.	.64	1967-81	7- 6-81	13.86	72
02065100	Snake Creek near Brookneal, Va.	Lat 37°00'42", long 78°57'52", on U.S. Highway 501, 2.1 mi south of Brookneal.	1.68	1967-81	6- 7-81	6.30	300

* Discharge not determined.
♦ Operated as a continuous-record gaging station.
< Less than.

Annual maximum discharge at crest-stage partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
		ROANOKE RIVER BASIN--Continued					
02065300	Right Hand Fork near Appomattox, Va.	Lat 37°16'12", long 78°49'14", Appomattox County, at culvert on State Highway 727, 5.2 mi south of Appomattox.	2.08	1967-81	7- 4-81	3.84	64
02075350	Powells Creek near Turbeville, Va.	Lat 36°34'50", long 79°11'20", Halifax County, at culvert on U.S. Highway 58, 8.8 mi southwest of Turbeville. Datum of gage is 383.95 ft National Geodetic Vertical Datum of 1929.	.28	a1958-69, 1970-81	2-20-81	3.56	145
02076200	Bearskin Creek near Chatham, Va.	Lat 36°50'30", long 79°29'05", Pittsylvania County, at culvert on State Highway 57, 4.5 mi west of Chatham.	4.06	1967-81	- -	b<3.18 <3.18	b<118 <118
02076700	Blacks Creek near Mt. Airy, Va.	Lat 36°56'40", long 79°09'56", Pittsylvania County, at culvert on State Highway 40, 1.5 mi east of Mt. Airy.	3.44	1966-81	9- 7-81	4.59	173
		KANAWHA RIVER BASIN					
03165500	New River at Ivanhoe, Va.	Lat 36°50'05", long 80°57'10", Wythe County, on left bank at Ivanhoe, 2.1 mi downstream from Big Branch, and 2.3 mi upstream from Cripple Creek. Datum of gage is 1,943.09 ft National Geodetic Vertical Datum of 1929.	1,340	1927*, 1929-78*, 1979-81	5-28-81	11.48	21,300
03165700	Cripple Creek at Cedar Springs, Va.	Lat 36°49'31", long 81°16'45", Wythe County, at bridge on State Highway 749, 0.6 mi southeast of Cedar Springs.	11.3	1967-81	-	<13.9	<360
03167300	Mira Fork tributary near Dugspur, Va.	Lat 36°50'16", long 80°35'47", Carroll County, at culvert on U.S. Highway 221, 2.2 mi northeast of Dugspur. Datum of gage is 2,602.96 ft National Geodetic Vertical Datum of 1929.	.62	1967-81	5-28-81	4.45	103
03167700	Beaverdam Creek at Hillsville, Va.	Lat 36°46'05", long 80°43'33", Carroll County, at culvert on State Highway 1009, 0.2 mi east of Hillsville corporation limits. Datum of gage is 2,373.04 ft National Geodetic Vertical Datum of 1929.	4.75	1968-81	2-11-81	3.46	186
03168750	Thorne Springs Branch near Dublin, Va.	Lat 37°05'30", long 80°44'34", Pulaski County, at pond dam just upstream from U.S. Highway 11, 3.3 mi southwest of Dublin.	4.77	a1957-69, 1970-81	2- 9-81	1.52	41
03171500	New River at Eggleston, Va.	Lat 37°17'22", long 80"37'01", Giles County, on left bank 50 ft downstream from highway bridge at Eggleston. Datum of gage is 1,615.59 ft National Geodetic Vertical Datum of 1929.	2,941	1915-76*, 1977-81	5-29-81	11.30	25,000
		BIG SANDY RIVER BASIN					
03208800	Pound River above Indian Creek at Pound, Va.	Lat 37°07'26", long 82°36'29", Wise County, on left bank at Pound, 1,600 ft downstream from confluence of North and South Fork, 0.5 mi upstream from U.S. Highway 23, and 0.7 mi above Indian Creek.	36.7	1966-78*, 1979-81	4-20-81	8.22	856

* Operated as a continuous-record gaging station.
< Less than.
a Records furnished by U.S. Department of Agriculture, Soil Conservation Service.
b Revised.

Annual maximum discharge at crest-stage partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum		
					Date	Gage height (ft)	Discharge (ft^3/s)
BIG SANDY RIVER BASIN--Continued							
03208850	Pound River below Bold Camp Creek, at Pound, Va.	Lat 37°07'19", long 82°35'55", Wise County, on left bank at Pound, 1,000 ft upstream from State Highway 83, 0.3 mi below Bold Camp Creek, and 0.5 mi below Indian Creek.	61.2	1966-78*, 1979-81	4-20-81	11.27	1,170
TENNESSEE RIVER BASIN							
03471200	South Fork Holston River at Teas, Va.	Lat 36°46'22", long 81°27'05", Smyth County, at bridge on State Highway 601, at Teas. Datum of gage is 2,496.98 ft National Geodetic Vertical Datum of 1929.	31.1	1967-81	-	<10.88	<60
03472500	Beaverdam Creek at Damascus, Va.	Lat 36°37'40", long 81°47'28", Washington County, at Damascus, 0.6 mi upstream from mouth. Datum of gage is 1,946.66 ft National Geodetic Vertical Datum of 1929.	56.0	1948-59*, 1960-81	4-20-81	4.85	2,360
03473500	Middle Fork Holston River at Groseclose, Va.	Lat 36°53'19", long 81°20'51", Smyth County, 10 ft downstream from bridge on State Highway 679, at Groseclose. Datum of gage is 2,442.86 ft National Geodetic Vertical Datum of 1929.	7.39	1948-57*, 1958-81	6- 4-81	2.96	64
03474700	Hutton Creek near Chilhowie, Va.	Lat 36°47'00", long 81°44'05", Washington County, at bridge on U.S. Highway 11, 3.3 mi southwest of Chilhowie.	8.32	1967-81	6- 4-81	10.72	234
03474800	Hall Creek near Glade Spring, Va.	Lat 36°45'47", long 81°48'15", Washington County, at bridge on U.S. Highway 11, 2.5 mi south of Glade Spring.	7.90	1967-81	6- 4-81	10.17	408
03475600	Cedar Creek near Meadowview, Va.	Lat 36°44'50", long 81°51'20", Washington County, at culvert on U.S. Highway 11, 1.2 mi south of Meadowview. Datum of gage is 2,034.66 ft National Geodetic Vertical Datum of 1929.	3.38	1967-81	6- 4-81	6.02	36
03475700	Spring Creek near Abingdon, Va.	Lat 36°40'43", long 82°02'29", Washington County, at culvert on U.S. Highway 11, 3.8 mi southwest of Abingdon. Datum of gage is 1,977.54 ft National Geodetic Vertical Datum of 1929.	2.99	1967-81	6- 5-81	3.71	101
03487800	Lick Creek near Chatham Hill, Va.	Lat 36°57'44", long 81°28'21", Smyth County, 270 ft upstream from bridge on State Highway 42, 2.9 mi east of Chatham Hill. Datum of gage is 2,076.97 ft National Geodetic Vertical Datum of 1929.	25.5	1966-68*, 1969-81	5-28-81	4.45	638
03489800	Cove Creek near Shelleys, Va.	Lat 36°39'13", long 82°21'16", Scott County, at bridge on U.S. Highway 58, 2 mi north of Shelleys. Datum of gage is 1,381.53 ft National Geodetic Vertical Datum of 1929.	17.3	1951-81	6- 6-81	6.94	1,430
03489870	Big Moccasin Creek at Collinwood, Va.	Lat 36°44'16", long 82°19'25", Russell County, at bridge on State Highway 612, at Collinwood. Datum of gage is 1,796.34 ft National Geodetic Vertical Datum of 1929.	41.9	1967-68*, 1969-81	6- 6-81	2.70	550

* Operated as a continuous-record gaging station.
< Less than.

Annual maximum discharge at crest-stage partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Annual Maximum Date	Annual Maximum Gage height (ft)	Annual Maximum Discharge (ft^3/s)
		TENNESSEE RIVER BASIN--Continued					
03526000	Copper Creek near Gate City, Va.	Lat 36°40'26", long 82°33'57", Scott County, on right bank at upstream side of highway bridge, 2.6 mi northeast of Gate City. Datum of gage is 1,301.95 ft National Geodetic Vertical Datum of 1929.	106	1948-72*, 1973-81	6- 6-81	6.63	1,080

* Operated as a continuous-record gaging station.

Coal-monitoring partial-record stations in Southwest Virginia

The following table contains discharge measurements made at coal-monitoring partial-record stations. These measurements were made at the time water-quality samples were collected. The results of these samples are given in the table headed "Analyses of samples collected at partial-record, special study, and miscellaneous sites".

Discharge measurements made at coal-monitoring partial-record stations during water year 1981

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		BIG SANDY RIVER BASIN				
Russell Fork	Levisa Fork	Lat 37°04'18", long 82°03'12", Buchanan County, 0.4 mi above Fuller Branch, 1.4 mi southeast of Council.	1.16	-	8-26-81	0.069
Fuller Branch	Russell Fork	Lat 37°04'19", long 82°03'15", Buchanan County, at mouth, 1.1 mi southeast of Council.	1.47	-	8-26-81	.097
Russell Fork	Levisa Fork	Lat 37°04'38", long 82°03'47", Buchanan County, off State Highway 80, just above Ball Creek, and 0.5 mi southeast of Council.	2.83	-	8-25-81	.26
Ball Creek	Russell Fork	Lat 37°05'12", long 82°02'05", Buchanan County, above mouth of Nance White Branch, 2.0 mi northeast of Council.	.91	-	8-25-81	.127
Nance White Branch	Ball Creek	Lat 37°05'13", long 82°02'07", Buchanan County, at mouth, 2.0 mi northeast of Council.	1.13	-	8-25-81	.0048
Ball Creek	Russell Fork	Lat 37°04'45", long 82°02'19", Buchanan County, above mouth of Grissom Creek, 2.3 mi east of Council.	2.29	-	8-25-81	.14
Grissom Creek	Ball Creek	Lat 37°06'12", long 82°03'02", Buchanan County, below unnamed tributary, 1.9 mi northeast of Council.	1.44	-	8-25-81	.013
Grissom Creek	Ball Creek	Lat 37°05'27", long 82°03'02", Buchanan County, at Venia, 1.3 mi northeast of Council.	2.18	-	8-25-81	.013
03208034 Grissom Creek	Ball Creek	Lat 37°04'43", long 82°02'25", Buchanan County, near mouth, 1.7 mi east of Council.	2.82	-	8-25-81	.025
Jackson Fork	Barton Fork	Lat 37°04'38", long 82°01'43", Buchanan County, at mouth, 2.4 mi east of Council.	.64	-	8-25-81	.0093
Barton Fork	Ball Creek	Lat 37°04'39", long 82°01'49", Buchanan County, below Jackson Fork, 2.3 mi east of Council.	-	-	8-25-81	.052
Unnamed tributary	Barton Fork	Lat 37°04'34", long 82°02'10", Buchanan County, 0.1 mi above mouth, 1.9 mi east of Council.	.17	-	8-25-81	.0042
03208036 Barton Fork	Ball Creek	Lat 37°04'37", long 82°02'21", Buchanan County, 200 ft above mouth, 1.7 mi east of Council.	1.23	-	2-26-81 8-25-81	.86 .078
Ball Creek	Russell Fork	Lat 37°04'35", long 82°02'27", Buchanan County, below Barton Fork, 1.3 mi east of Council.	6.39	-	8-25-81	.22
Ball Creek	Russell Fork	Lat 37°04'40", long 82°03'45", Buchanan County, at mouth, 0.5 mi east of Council.	7.26	-	8-25-81	.23
03208040 Russell Fork	Levisa Fork	Lat 37°04'40", long 82°03'57", Buchanan County, at State Highway 80, at Council.	10.2	1978	2-26-81	10
Unnamed tributary	Russell Fork	Lat 37°04'52", long 82°04'15", Buchanan County, at mouth, at Council.	.56	-	8-25-81	<.01

< Less than.

Discharge measurements made at coal-monitoring partial-record stations during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
BIG SANDY RIVER BASIN--Continued						
Russell Fork	Levisa Fork	Lat 37°04'58", long 82°05'03", Buchanan County, at State Highway 672, above McFarland Branch, and 0.8 mi west of Council.	-	-	8-26-81	0.40
Big Branch	Russell Fork	Lat 37°05'04", long 82°05'01", Buchanan County, 0.1 mi above mouth, 0.8 mi west of Covington.	0.97	-	8-26-81	.026
Russell Fork	Levisa Fork	Lat 37°05'08", long 82°05'32", Buchanan County, above Dogpen Branch, 1.2 mi west of Council.	13.5	-	8-26-81	.42
Russell Fork	Levisa Fork	Lat 37°05'31", long 82°07'16", Buchanan County, above Tiller Cemetery, 1.0 mi southeast of Davenport.	15.7	-	8-26-81	.54
03208043 Russell Fork	Levisa Fork	Lat 37°05'57", long 82°08'10", Buchanan County, on State Highway 80, at private bridge near junction of State Highway 600, and at Davenport.	16.7	1979-80	12- 2-80 2-23-81 4- 9-81 5-18-81 7- 6-81	1.9 26 12 6.9 4.8
Hurricane Creek	Russell Fork	Lat 37°07'58", long 82°04'25", Buchanan County, above Left Fork, 4.1 mi northeast of Davenport.	1.76	-	8-26-81	.014
Left Fork	Hurricane Creek	Lat 37°08'01", long 82°04'31", Buchanan County, 200 ft above mouth, 4.0 mi northeast of Davenport.	.89	1980	8-26-81	.0064
Hurricane Creek	Russell Fork	Lat 37°07'31", long 82°04'50", Buchanan County, above Parett Fletcher Branch, 3.5 mi northeast of Davenport.	3.23	-	8-26-81	.012
Parett Fletcher Branch	Hurricane Creek	Lat 37°07'29", long 82°04'49", Buchanan County, at mouth, 3.5 mi northeast of Davenport.	.48	-	8-26-81	.0084
Hurricane Creek	Russell Fork	Lat 37°06'40", long 82°05'18", Buchanan County, at State Highway 600, just above Rockhouse Branch, and 2.7 mi east of Davenport.	4.88	-	8-26-81	.045
Rockhouse Branch	Hurricane Creek	Lat 37°06'37", long 82°05'13", Buchanan County, above mouth, 2.7 mi east of Davenport.	1.38	-	8-26-81	.0020
Hurricane Creek	Russell Fork	Lat 37°06'24", long 82°05'36", Buchanan County, above Gilbert Fork, 2.4 mi east of Davenport.	6.60	-	8-26-81	.057
03208046 Hurricane Creek	Russell Fork	Lat 37°06'34", long 82°07'42", Buchanan County, on State Highway 600, at footbridge 200 ft upstream from Left Fork Hurricane Creek, and 0.8 mi northeast of Davenport.	16.5	1979-80	12- 2-80 2-23-81 4- 9-81 5-18-81 7- 6-81 8-24-81 8-27-81	.98 20 8.4 1.7 3.7 .16 .10
Left Fork Hurricane Creek	Hurricane Creek	Lat 37°08'46", long 82°06'29", Buchanan County, above New Camp Branch, 3.3 mi northeast of Davenport.	1.18	-	8-25-81	.11
Left Fork Hurricane Creek	Hurricane Creek	Lat 37°08'33", long 82°06'29", Buchanan County, above Ratecliff Fork, 3.0 mi northeast of Davenport.	1.91	-	8-25-81	.19
Left Fork Hurricane Creek	Hurricane Creek	Lat 37°07'52", long 82°06'56", Buchanan County, above Boyd Branch, 2.5 mi northeast of Davenport.	2.88	-	8-25-81	.21

Discharge measurements made at coal-monitoring partial-record stations during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		BIG SANDY RIVER BASIN--Continued				
Boyd Branch	Left Fork Hurricane Creek	Lat 37°07'54", long 82°07'00", Buchanan County, 0.1 mi above mouth, 2.5 mi northeast of Davenport.	0.68	-	8-25-81	0.001
Left Fork Hurricane Creek	Hurricane Creek	Lat 37°07'26", long 82°07'02", Buchanan County, above Jakes Fork, 2.0 mi northeast of Davenport.	3.86	-	8-25-81	.24
Unnamed tributary	Jakes Fork	Lat 37°07'30", long 82°06'20", Buchanan County, at mouth, 2.3 mi northeast of Davenport.	-	-	8-25-81	.013
Jakes Fork	Left Fork Hurricane Creek	Lat 37°07'24", long 82°07'00", Buchanan County, 0.1 mi above mouth, 2.0 mi northeast of Davenport.	1.53	-	8-25-81	.021
Left Fork Hurricane Creek	Hurricane Creek	Lat 37°07'16", long 82°07'20", Buchanan County, above Ivy Lick Creek, 1.8 mi northeast of Davenport.	5.57	-	8-25-81	.18
Ivy Lick Branch	Left Fork Hurricane Creek	Lat 37°07'16", long 82°07'25", Buchanan County, at mouth, 1.8 mi northeast of Davenport.	.74	-	8-25-81	.007
03208048 Left Fork Hurricane Creek	Hurricane Creek	Lat 37°06'43", long 82°07'40", Buchanan County, at bridge on State Highway 600, 0.8 mi northeast of Davenport.	8.92	1979-80	8-27-81	.14
03208060 Russell Fork	Levisa Fork	Lat 37°06'36", long 82°09'27", Buchanan County, just above Indian Creek, 1.3 mi northwest of Davenport.	35.4	1978	8-27-81	.94
Little Indian Creek	Indian Creek	Lat 37°02'55", long 82°05'03", Buchanan County, at State Highway 602, at mouth, and 2.3 mi south of Council.	1.01	-	8-25-81	.058
Indian Creek	Russell Fork	Lat 37°03'48", long 82°05'35", Buchanan County, above Copperhead Branch, 1.6 mi southwest of Council.	2.90	-	8-25-81	.10
Indian Creek	Russell Fork	Lat 37°04'13", long 82°06'44", Buchanan County, above Puncheon Camp Branch, 2.6 mi southwest of Council.	4.21	-	8-25-81	.004
Puncheon Camp Branch	Indian Creek	Lat 37°04'13", long 82°06'54", Buchanan County, at mouth, 2.6 mi southwest of Council.	.72	-	8-25-81	.033
Indian Creek	Russell Fork	Lat 37°04'21", long 82°08'00", Buchanan County, above Three Forks, 1.2 mi southeast of Duty.	6.25	-	8-25-81	.19
Johns Fork	Three Forks	Lat 37°03'22", long 82°07'38", Buchanan County, above unnamed tributary near Cane Gap, 2.2 mi southeast of Duty.	.99	-	8-26-81	.47
Johns Fork	Three Forks	Lat 37°03'28", long 82°07'35", Buchanan County, above confluence with Patton Branch, 2.1 mi southeast of Duty.	1.41	-	8-26-81	.47
Patton Branch	Three Forks	Lat 37°03'27", long 82°07'32", Buchanan County, above confluence with Johns Fork, 2.1 mi southeast of Duty.	1.27	-	8-26-81	.002
Three Forks	Indian Creek	Lat 37°04'16", long 82°08'03", Buchanan County, at mouth, 1.2 mi southeast of Duty.	3.53	-	8-25-81	.55

Discharge measurements made at coal-monitoring partial-record stations during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		BIG SANDY RIVER BASIN--Continued				
Indian Creek	Russell Fork	Lat 37°04'53", long 82°08'35", Buchanan County, above unnamed tributary, 0.5 mi east of Duty.	10.2	-	8-25-81	0.60
Unnamed tributary	Indian Creek	Lat 37°04'55", long 82°08'32", Buchanan County, at State Highway 602, near mouth, and 0.5 mi east of Duty.	.39	-	8-25-81	.11
03208064 Indian Creek	Russell Fork	Lat 37°04'57", long 82°09'01", Buchanan County, on State Highway 602, 200 ft upstream from Cane Creek, 1.5 mi southwest of Davenport, and at Duty.	11.1	1979-80	8-25-81	.90
Unnamed tributary	Cane Creek	Lat 37°02'06", long 82°11'27", Dickenson County, at mouth, at Smith Gap, and 3.8 mi southwest of Duty.	.24	-	8-26-81	.0001
Cane Creek	Indian Creek	Lat 37°02'44", long 82°10'39", Dickenson County, above unnamed tributary, 3.0 mi southwest of Duty.	-	-	8-26-81	0
Cane Creek	Indian Creek	Lat 37°06'16", long 82°10'41", Dickenson County, above unnamed tributary, 2.4 mi southwest of Duty.	1.73	-	8-26-81	0
Unnamed tributary	Cane Creek	Lat 37°03'16", long 82°10'41", Dickenson County, at mouth, 2.3 mi southwest of Duty.	.46	-	8-26-81	0
Cane Creek	Indian Creek	Lat 37°04'08", long 82°09'37", Dickenson County, above Tiller Fork, 1.0 mi southwest of Duty.	2.96	-	8-26-81	.01
Tiller Fork	Cane Creek	Lat 37°03'33", long 82°09'44", Dickenson County, above unnamed tributary, 1.7 mi south of Duty.	1.09	-	8-26-81	.43
Unnamed tributary	Tiller Fork	Lat 37°03'33", long 82°09'41", Dickenson County, near mouth, 1.7 mi south of Duty.	.38	-	8-26-81	0
Tiller Fork	Cane Creek	Lat 37°04'00", long 82°09'23", Dickenson County, above Left Fork, 1.0 mi south of Duty.	1.73	-	8-26-81	.44
Left Fork	Tiller Fork	Lat 37°04'01", long 82°09'20", Dickenson County, at mouth, 1.0 mi south of Duty.	1.02	-	8-26-81	.021
Tiller Fork	Cane Creek	Lat 37°04'10", long 82°09'33", Dickenson County, at mouth, 0.9 mi south of Duty.	2.84	-	8-26-81	.47
Unnamed tributary	Cane Creek	Lat 37°04'18", long 82°09'43", Dickenson County, at mouth, 0.8 mi south of Duty.	.64	-	8-26-81	.69
03208067 Cane Creek	Indian Creek	Lat 37°04'50", long 82°10'13", Dickenson County, on State Highway 601, at footbridge 1,000 ft upstream from mouth, and at Duty.	6.95	1979-80	8-25-81	.56
Indian Creek	Russell Fork	Lat 37°05'04", long 82°09'06", Dickenson and Buchanan Counties, 0.2 mi below Cane Creek, at Duty.	18.2	-	8-25-81	1.4
Indian Creek	Russell Fork	Lat 37°05'52", long 82°09'40", Dickenson County, above Sullivan Branch, 1.2 mi north of Duty.	19.2	-	8-25-81	1.6

Discharge measurements made at coal-monitoring partial-record stations during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
BIG SANDY RIVER BASIN--Continued						
Sullivan Branch	Indian Creek	Lat 37°05'32", long 82°10'12", Dickenson County, above unnamed tributary near Long Ridge, 1.2 mi northwest of Duty.	0.72	-	8-27-81	0.017
Sullivan Branch	Indian Creek	Lat 37°05'52", long 82°09'45", Dickenson County, at mouth, 1.2 mi north of Duty.	1.29	-	8-26-81	.0033
03208070 Indian Creek	Russell Fork	Lat 37°06'35", long 82°09'30", Dickenson County, at mouth, 1.3 mi northwest of Davenport.	21.1	1978	8-27-81	1.3
Big Branch	Russell Fork	Lat 37°06'46", long 82°10'03", Dickenson County, at State Highway 80, 1.0 mi south of Murphy.	1.10	-	8-27-81	.007
Abner Branch	Russell Fork	Lat 37°06'54", long 82°10'20", Dickenson County, at mouth, at Bee, and 0.8 mi south of Murphy.	2.01	-	8-27-81	.021
Russell Fork	Levisa Fork	Lat 37°07'18", long 82°10'26", Dickenson and Buchanan Counties, at private road bridge, 0.2 mi above Laurel Branch, and 0.3 mi south of Murphy.	60.5	-	8-27-81	2.4
Laurel Branch	Russell Fork	Lat 37°07'28", long 82°10'20", Buchanan County, at State Highway 605, near mouth, and 0.1 mi south of Murphy.	1.07	-	8-27-81	.004
Russell Fork	Levisa Fork	Lat 37°08'27", long 82°10'55", Dickenson and Buchanan Counties, above Little Fox Creek, 1.1 mi north of Murphy.	63.4	-	8-25-81	2.6
Jackson Fork	Little Fox Creek	Lat 37°08'47", long 82°08'18", Buchanan County, at mouth, 2.5 mi northeast of Murphy.	.58	-	8-25-81	.0036
Little Fox Creek	Russell Fork	Lat 37°08'37", long 82°09'06", Buchanan County, above Spruce Pine Branch, 1.7 mi northeast of Murphy.	1.61	-	8-25-81	.083
Little Fox Creek	Russell Fork	Lat 37°08'42", long 82°09'50", Buchanan County, 0.6 mi below Spruce Pine Branch, just above unnamed tributary, and 1.4 mi north of Murphy.	2.41	-	8-25-81	.098
Unnamed tributary	Little Fox Creek	Lat 37°08'47", long 82°09'50", Buchanan County, at mouth, 1.4 mi north of Murphy.	.44	-	8-25-81	.0030
Little Fox Creek	Russell Fork	Lat 37°08'30", long 82°10'56", Buchanan County, at State Highway 605, near mouth, and 1.2 mi north of Murphy.	3.50	-	8-25-81	.052
Russell Fork	Levisa Fork	Lat 37°09'12", long 82°11'25", Buchanan County, above Fox Creek, 2.1 mi north of Murphy.	67.7	-	8-26-81	3.2
Fox Creek	Russell Fork	Lat 37°09'34", long 82°07'42", Buchanan County, 0.3 mi below Jackson Branch, 3.5 mi northeast of Murphy.	.62	-	8-26-81	.035
Fox Creek	Russell Fork	Lat 37°09'49", long 82°08'26", Buchanan County, 0.1 mi above Dick Branch, 3.2 mi northeast of Murphy.	1.14	-	8-26-81	.030
Dick Branch	Fox Creek	Lat 37°10'00", long 82°07'32", Buchanan County, above unnamed tributary, 4.0 mi northeast of Murphy.	.13	-	8-26-81	.030

Discharge measurements made at coal-monitoring partial-record stations during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		BIG SANDY RIVER BASIN--Continued				
Dick Branch	Fox Creek	Lat 37°09'53", long 82°08'29", Buchanan County, 0.1 mi above mouth, 3.3 mi northeast of Murphy.	0.66	-	8-26-81	0.030
Fox Creek	Russell Fork	Lat 37°09'43", long 82°10'21", Buchanan County, above Left Fork, 2.5 mi north of Murphy.	3.68	-	8-26-81	.051
Left Fork	Fox Creek	Lat 37°09'46", long 82°10'23", Buchanan County, at mouth, 2.5 mi north of Murphy.	1.69	-	8-26-81	.013
03208080 Fox Creek	Russell Fork	Lat 37°09'17", long 82°11'23", Buchanan County, at mouth, 2.1 mi northwest of Murphy.	6.12	1978	8-26-81	.069
Russell Fork	Levisa Fork	Lat 37°09'51", long 82°12'24", Buchanan and Dickenson Counties, above Pawpaw Creek, at Cannady, and 2.3 mi northeast of Colley.	75.6	-	8-26-81	2.6
03208086 Pawpaw Creek	Russell Fork	Lat 37°10'34", long 82°11'20", Buchanan County, 0.1 mi above Wildcat Branch, 2.4 mi south of Prater.	-	-	1-14-81 2-24-81	.24 4.2
Pawpaw Creek	Russell Fork	Lat 37°10'05", long 82°11'58", Buchanan County, above Hackney Hollow, 3.1 mi south of Prater.	4.12	-	8-26-81	.017
03208088 Hackney Hollow tributary	Pawpaw Creek	Lat 37°10'06", long 82°12'02", Buchanan County, 0.1 mi above mouth, 2.6 mi northeast of Colley.	1.44	1980	8-26-81	.001
Pawpaw Creek	Russell Fork	Lat 37°09'53", long 82°12'13", Buchanan County, above Little Pawpaw Creek, 2.5 mi northeast of Colley.	5.70	-	8-26-81	.025
03208089 Little Pawpaw Creek	Pawpaw Creek	Lat 37°10'00", long 82°12'17", Buchanan County, at culvert on State Highway 605, 200 ft upstream from mouth, and 2.4 mi northeast of Colley.	1.36	1979-80	8-26-81	.013
03208090 Pawpaw Creek	Russell Fork	Lat 37°09'56", long 82°12'23", Buchanan County, 15 ft below confluence with Little Pawpaw Creek, 0.1 mi above mouth, and 3.1 mi south of Prater.	7.07	1980	8-26-81	.030
Russell Fork	Levisa Fork	Lat 37°10'15", long 82°14'11", Dickenson County, above Laurel Branch (North), at Viers, and 1.3 mi north of Colley.	85.4	-	8-26-81	1.6
Laurel Branch (North)	Russell Fork	Lat 37°10'19", long 82°14'11", Dickenson County, at State Highway 605, at mouth, at Viers, and 1.3 mi north of Colley.	1.43	-	8-26-81	.007
03208100 Russell Fork	Levisa Fork	Lat 37°09'49", long 82°15'20", Dickenson County, above Fryingpan Creek, 1.1 mi southeast of Birchleaf.	87.4	1978	7- 6-81 8-24-81	18 4.6

Low-flow partial-record stations

Measurements of streamflow in the area covered by this report made at low-flow partial-record stations are given in the following table. These measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of a nearby stream when continuous records are available, will give a picture of the low-flow potentiality of a stream. The column headed "Period of record" shows the water years in which measurements were made at the same, or practically the same, site.

Discharge measurements made at low-flow partial-record stations during water year 1981

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		POTOMAC RIVER BASIN				
01643643	Goose Creek at Delaplane, Va.	Lat 38°54'51", long 77°55'19", Fauquier County, at bridge on U.S. Highway 17, just below Crooked Run, and at Delaplane.	45.6	1952-54, 1969	8- 4-81 9- 5-81	1.6 .62
01643800	N. F. Goose Creek near Lincoln, Va.	Lat 39°04'38", long 77°41'52", Loudoun County, at bridge on State Highway 722, 0.6 mi above Crooked Run, and 2.5 mi south of Lincoln.	-	1952-54	8- 4-81 9-15-81	2.1 1.6
01653700	Little Hunting Creek at Gum Springs, Va.	Lat 38°44'21", long 77°05'20", Fairfax County, 50 ft downstream from U.S. Highway 1, at Gum Springs.	1.78	1960, 1962-63, 1977, 1980	10- 9-80 7- 8-81	.14 .48
01653800	Dogue Creek near Accotink, Va.	Lat 38°43'08", long 77°07'44", Fairfax County, at bridge on U.S. Highway 1, 1.8 mi northeast of Accotink.	10.6	1960-63, 1977, 1980	10- 9-80 7- 8-81	.11 4.4
01656200	Broad Run near Warrenton, Va.	Lat 38°48'25", long 77°48'47", Fauquier County, at culvert on U.S. Highway 17, 2.1 mi above Piney Branch, and 7.0 mi north of Warrenton.	2.94	1953-54, 1956, 1959-61, 1976	8- 4-81 9-15-81	.20 .44
01657890	Neabsco Creek tributary near Dale City, Va.	Lat 38°37'13", long 77°16'35", Prince William County, at bridge on State Highway 638, 0.5 mi above mouth, and 2.0 mi southeast of Dale City.	3.33	1980	6-30-81	.58
01660670	Accokeek Creek near Brooke, Va.	Lat 38°22'38", long 77°21'26", Stafford County, 200 ft above bridge on State Highway 609, 1.3 mi southeast of Brooke, and 4.4 mi above mouth.	18.0	1980	6-30-81 9-30-81	.50 .31
01660765	Upper Machodoc Creek near Dahlgren, Va.	Lat 38°18'57", long 77°05'20", King George County, at bridge on State Highway 616, 1.6 mi below Pepper Mill Creek, and 2.0 mi southwest of Dahlgren.	26.2	1980	6-24-81 9-30-81	6.3 (c)
01660870	Fox Hall Swamp near Potomac Mills, Va.	Lat 38°09'24", long 76°57'43", Westmoreland County, at bridge on State Highway 639, 0.2 mi above Bundys Swamp, and 1.2 mi southwest of Potomac Mills.	2.28	1980	6-24-81 9-30-81	.61 .16
01661160	Nomini Creek near Neenah, Va.	Lat 38°02'28", long 76°10'22", Westmoreland County, at culvert on State Highway 600, 0.5 mi below Antioch Branch, and 1.0 mi southeast of Neenah.	9.99	1980	6-24-81 9-30-81	3.9 3.2
		RAPPAHANNOCK RIVER BASIN				
01661840	Rappahannock River near Flint Hill, Va.	Lat 38°45'32", long 78°01'42", Rappahannock and Fauquier Counties, at bridge on State Highway 647, 0.1 mi below Jordan River, and 4.0 mi east of Flint Hill.	-	1943, 1950-54, 1963, 1976-77	8- 4-81 9-15-81	3.8 3.6
01662110	Hazel River near Woodville, Va.	Lat 38°36'27", long 78°14'15", Rappahannock County, at bridge on State Highway 231, 3.5 mi west of Woodville, and 8.0 mi above mouth.	5.54	1950-54, 1961, 1963	8- 4-81 9-15-81	3.7 1.8

c Ponded, no apparent flow.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		RAPPAHANNOCK RIVER BASIN--Continued				
01662500	Rush River at Washington, Va.	Lat 38°42'50", long 78°09'05", Rappahannock County, at bridge on old U.S. Highway 211, 0.2 mi east of Washington, and 4.6 mi above mouth.	14.7	1952, 1953-77*, 1978	8- 4-81 9-15-81	0.69 .79
01663000	Thornton River near Laurel Mills, Va.	Lat 38°37'41", long 78°03'47", Rappahannock County, at bridge on State Highway 729, 2.0 mi southeast of Laurel Mills, and 2.9 mi below Battle Run.	142	1942, 1944-56, 1978	8- 4-81 9-15-81	2.2 10
01665220	Deep Run near Goldvein, Va.	Lat 38°27'07", long 77°37'46", Fauquier and Stafford Counties, at bridge on State Highway 615, 1.5 mi east of Goldvein, and 3.3 mi above mouth.	-	1963	8- 3-81 9-14-81	2.8 .90
01665400	Conway River near Stanardsville, Va.	Lat 38°19'58", long 78°23'53", Madison and Greene Counties, at bridge on State Highway 230, 2.2 mi above mouth, and 2.8 mi northeast of Stanardsville.	25.8	1943, 1950-54, 1963, 1978	8- 5-81 9-18-81	8.5 7.4
01665850	Robinson River near Criglersville, Va.	Lat 38°26'54", long 78°16'44", Madison County, at bridge on State Highway 231, 0.7 mi above Leathers Run, and 1.4 mi southeast of Criglersville.	-	1950-54, 1964	8- 5-81 9-18-81	28 11
01667848	Black Walnut Run at Burr Hill, Va.	Lat 38°20'26", long 77°51'34", Orange County, 10 ft above mouth, at Burr Hill.	11.9	-	8- 3-81 9-14-81	.12 .26
01667850	Mine Run at Burr Hill, Va.	Lat 38°20'36", long 77°51'33", Orange County, at bridge on State Highway 692, just downstream from Black Walnut Run, and at Burr Hill.	-	1943, 1951, 1953, 1963	8- 3-81 9-14-81	.59 .54
01668100	White Oak Run near Passapatanzy, Va.	Lat 38°15'38", long 77°21'43", Stafford County, at culvert on State Highway 603, 1.0 mi above mouth, and 4.0 mi southwest of Passapatanzy.	8.29	1980	6-30-81 9-30-81	0 0
01668200	Gingoteague Run near Port Royal, Va.	Lat 38°12'38", long 77°09'08", King George County, at culvert on State Highway 623, 3.4 mi northeast of Port Royal, and 3.9 mi above mouth.	2.82	1968-69, 1980	6-24-81 9-30-81	.32 .02
01668305	Farmers Hall Creek at Rt. 631, near Champlain, Va.	Lat 38°00'53", long 76°57'47", Essex County, at culvert on State Highway 631, 0.35 mi below Rouzie Swamp, and 1.6 mi east of Champlain.	3.65	1980	6-24-81 9-30-81	.30 0
01669100	Totuskey Creek near Emmerton, Va.	Lat 37°54'47", long 76°39'29", Richmond County, at bridge at State Highway 619, just below confluence with Mill Branch, and 1.5 mi northeast of Emmerton.	28.4	1980	6-25-81 9-25-81	5.3 4.3
01669150	Bellwood Swamp near Lancaster, Va.	Lat 37°46'47", long 76°29'47", Lancaster County, at culvert on State Highway 201, 1.5 mi above mouth, and 1.8 mi northwest of Lancaster.	8.23	1980	6-25-81 9-25-81	2.0 1.3
		PIANKATANK RIVER BASIN				
01669400	Timber Branch Swamp tributary at Dragonville, Va.	Lat 37°41'25", long 76°46'25", King and Queen County, at culvert on State Highway 610, 0.15 mi above mouth, and 0.5 mi southeast of Dragonville.	.61	1980	6-25-81	.02

* Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		PIANKATANK RIVER BASIN--Continued				
01669810	Healys Pond tributary near Harmony Village, Va.	Lat 37°34'53", long 76°30'24", Middlesex County, at culvert on State Highway 620, 0.7 mi above Healys Pond, and 1.8 mi southwest of Harmony Village.	0.72	1980	6-25-81 9-29-81	2.1 .25
		CHESAPEAKE BAY				
01669850	Queens Creek near Blakes, Va.	Lat 37°29'22", long 76°22'55", Mathews County, at culvert on State Highway 626, 1.0 mi southwest of Blakes.	1.56	1980	11-17-80 6-25-81 9-25-81	0 0 0
01669885	North River tributary near North, Va.	Lat 37°28'17", long 76°25'15", Mathews County, at culvert on State Highway 657, 0.1 mi above mouth, and 2.0 mi north of North.	1.04	1980	11-17-80 6-25-81 9-25-81	0 (c) 0
		WARE RIVER BASIN				
01670010	Beaverdam Swamp tributary No. 2 at Ark, Va.	Lat 37°26'35", long 76°34'27", Gloucester County, at culvert on State Highway 606, 0.4 mi north of Ark, and 2.4 mi above mouth.	1.29	1949-55, 1980	6-25-81 9-25-81	.09 .04
01670020	Beaverdam Swamp at Gloucester, Va.	Lat 37°25'34", long 76°31'48", Gloucester County, at bridge on State Highway 616, 0.7 mi northwest of Gloucester, and 3.0 mi above Cow Creek.	22.1	1949-54, 1980	6-25-81 9-25-81	2.8 (c)
		YORK RIVER BASIN				
01670120	Mountain Run near Gordonsville, Va.	Lat 38°09'39", long 78°05'36", Orange County, at bridge on State Highway 643, 0.8 mi above confluence with Negro Run, and 4.6 mi east of Gordonsville.	-	-	8- 3-81 9-14-81	.24 .94
01670200	Pamunkey Creek near Lahore, Va.	Lat 38°09'16", long 77°57'02", Orange County, at bridge on State Highway 651, 1.0 mi above Lake Anna, and 3.3 mi southeast of Lahore.	-	-	8- 3-81 9-14-81	2.9 4.2
01671040	Long Creek near Buckner, Va.	Lat 37°55'38", long 77°47'44", Louisa County, at bridge on State Highway 655, 0.9 mi above mouth, and 2.7 mi southwest of Buckner.	-	-	6-26-81 9-23-81	.41 .072
01671680	South Anna River near Louisa, Va.	Lat 37°58'50", long 78°02'54", Louisa County, at bridge on State Highway 208, 3.6 mi above Roundabout Creek, and 4.3 mi southwest of Louisa.	-	1942, 1944, 1952-54	8- 3-81 9-23-81	6.7 6.5
01671950	Deep Creek near Apple Grove, Va.	Lat 37°51'57", long 77°54'53", Louisa County, at culvert on State Highway 640, 0.4 mi above mouth, and 2.0 mi southwest of Apple Grove.	-	-	7- 9-81 9-23-81	2.7 .16
01672200	Taylors Creek near Montpelier, Va.	Lat 37°47'49", long 77°43'27", Hanover County, at culvert on State Highway 715, 2.7 mi southwest of Montpelier, and 6.8 mi above mouth.	-	-	6-26-81 9-15-81	1.5 (c)
01672800	Newfound River near Ashland, Va.	Lat 37°50'35", long 77°32'30", Hanover County, at bridge on State Highway 685, 0.1 mi below Beaver Creek, 1.3 mi west of Hanover Academy, and 5.8 mi northwest of Ashland.	-	1952-54	6-26-81 9-15-81	2.3 .64

c Ponded, no apparent flow.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		YORK RIVER BASIN--Continued				
01673500	Totopotomy Creek near Atlee, Va.	Lat 37°40'09", long 77°22'58", Hanover County, at culvert on U.S. Highway 301, 0.7 mi above Opossum Creek, and 1.6 mi northeast of Atlee.	5.89	1949-77*	6-26-81 9-15-81	0.24 .073
01673560	Totopotomy Creek near Manquin, Va.	Lat 37°40'45", long 77°13'08", Hanover County, at bridge on State Highway 605, 0.7 mi above mouth, and 4.0 mi southwest of Manquin.	31.1	1980	6-25-81 9-25-81	4.9 1.7
01673600	Matadequin Creek near Tunstall, Va.	Lat 37°37'02", long 77°08'17", Hanover and New Kent Counties, at bridge on State Highway 606, 1.3 mi above mouth, and 3.2 mi northwest of Tunstall.	29.1	1963, 1980	6-22-81 9-29-81	12 2.5
01673620	Acquinton Creek near King William, Va.	Lat 37°41'04", long 77°02'44", King William County, at culvert on State Highway 629, 1.6 mi west of King William, and 3.9 mi above mouth.	8.93	1980	6-25-81 9-25-81	(c) 0
01673700	Catharpin Run near Brokenburg, Va.	Lat 38°13'22", long 77°43'30", Spotsylvania County, at bridge on State Highway 608, 0.1 mi above mouth, and 5.4 mi north of Brokenburg.	-	-	8- 3-81 9-14-81	.11 .087
01673900	Poni River tributary No. 1 near Guinea, Va.	Lat 38°09'07", long 77°27'16", Caroline County, at bridge on State Highway 607, 0.7 mi above mouth, and 1.0 mi northwest of Guinea.	6.15	1980	6-24-81 9-30-81	0 0
01673960	Mat River near near Marye, Va.	Lat 38°06'23", long 77°06'07", Spotsylvania County, at bridge on State Highway 647, 1.8 mi above confluence with Ta River, and 2.0 mi northwest of Marye.	-	1943, 1952-54, 1963, 1978	6-26-81 9-15-81	.16 0
01674172	Polecat Creek near Ladysmith, Va.	Lat 37°58'13", long 77°29'13", Caroline County, at bridge on State Highway 652, 0.5 mi above Stevens Mill Run, and 3.3 mi southeast of Ladysmith.	-	-	6-26-81 9-15-81	.23 0
01674200	Reedy Creek near Dawn, Va.	Lat 37°52'25", long 77°21'35", Caroline County, at culvert on U.S. Highway 301, 4.3 mi above mouth, and 5.8 mi north of Dawn.	16.8	1950, 1956, 1969, 1980	6-23-81 9-24-81	6.3 .86
01674250	Maracossic Creek at Sparta, Va.	Lat 37°59'23", long 77°14'30", Caroline County, at bridge on State Highway 721, 0.6 mi west of Sparta, and 0.9 mi above Jacks Creek.	37.6	1952-54, 1980	6-23-81 9-24-81	11 6.2
01674300	Maracossic Creek above Beverly Run, near Gether, Va.	Lat 37°55'15", long 77°11'29", Caroline County, at bridge on State Highway 646, 0.6 mi above Beverly Run, and 0.9 mi east of Gether.	72.4	1963, 1980	6-23-81 9-25-81	19 10
01674350	Beverly Run at Rt. 630, near Alps, Va.	Lat 37°59'29", long 77°09'10", Caroline County, at bridge on State Highway 630, 1.5 mi above King and Queen Swamp, and 1.5 mi east of Alps.	26.5	1952-54, 1980	6-23-81 9-24-81	11 3.5
01674400	Beverly Run at Rt. 721, near Alps, Va.	Lat 37°57'08", long 77°10'48", Caroline and King and Queen Counties, at bridge on Highway 721, 2.5 mi above mouth, and 2.8 mi south of Alps.	46.9	1980	6-23-81 9-24-81	21 5.2

* Operated as a continuous-record gaging station.
c Ponded, no apparent flow.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi²)	Period of record	Measurements	
					Date	Discharge (ft³/s)
		YORK RIVER BASIN--Continued				
01674600	Herring Creek near Aylett, Va.	Lat 37°50'12", long 77°10'03", King William County, 100 ft above bridge on State Highway 609, 0.4 mi above Fork Bridge Creek, 1.5 mi southeast of Beulahville, and 5.0 mi northwest of Aylett.	28.9	1952-54, 1980	6-23-81 9-25-81	3.9 2.0
01674805	Dickeys Swamp near Stevensville, Va.	Lat 37°44'03", long 76°57'56", King and Queen County, 60 ft below beaver dam, 100 ft below bridge on State Highway 620, 0.1 mi above Market Swamp, and 2.5 mi northwest of Stevensville.	19.8	1980	10-20-80 6-25-81 9-25-81	14.8 2.8 1.7
01675550	Glebe Swamp near Shackleford, Va.	Lat 37°33'21", long 76°42'38", King and Queen County, at culvert on State Highway 608, 1.4 mi northeast of Shacklefords, and 1.4 mi above mouth.	4.57	-	6-26-81 9-29-81	.44 .17
		POQUOSON RIVER BASIN				
01677900	Moores Creek near Poquoson, Va.	Lat 37°07'28", long 76°25'15", York County, at culvert on State Highway 171, 0.8 mi above mouth, and 0.8 mi west of Poquoson.	1.03	1980	11-17-80 6-19-81 9-16-81	0 0 5.6
		JAMES RIVER BASIN				
02024760	Reed Creek near Big Island, Va.	Lat 37°30'10", long 79°24'07", Bedford County, at bridge on State Highway 637, 0.3 mi above Meadow Creek, and 3.0 mi southwest of Big Island.	-	-	8-20-81 9-16-81	2.4 7.0
02024900	Pedlar River near Buena Vista, Va.	Lat 37°44'48", long 79°16'09", Amherst County, at bridge on U.S. Highway 60, 0.3 mi below Davis Mill Creek, and 4.2 mi east of Buena Vista.	-	1942, 1950-54	8-19-81 9-16-81	3.7 9.1
02025000	Pedlar River near Pedlar Mills, Va.	Lat 37°32'35", long 79°15'10", Amherst County, at bridge on State Highway 635, 1.1 mi south of Pedlar Mills, and 3.6 mi above mouth.	91.0	1942-56*, 1978	8-20-81 9-16-81	17 28
02025650	Harris Creek near Monroe, Va.	Lat 37°29'35", long 79°09'10", Amherst County, at bridge on State Highway 675, 1.3 mi west of Monroe, and 1.6 mi above Graham Creek.	-	-	8-19-81 9-16-81	8.7 14
02025900	Beaver Creek near Babcock, Va.	Lat 37°21'16", long 79°04'27", Campbell County, at bridge on State Highway 660, 2.3 mi east of Babcock, and 3.0 mi above Little Beaver Creek.	-	-	8-20-81 9-21-81	3.5 4.6
02026400	South Fork Tye River at Nash, Va.	Lat 37°57'24", long 79°02'47", Nelson County, at private road bridge, 100 ft above confluence with North Fork, and at Nash.	-	-	8-19-81 9-16-81	5.3 11
02027600	Buffalo River at Forks of Buffalo, Va.	Lat 37°40'47", long 79°13'20", Amherst County, at bridge on U.S. Highway 60, just below confluence of North and South Forks, and at Forks of Buffalo.	15.9	1942, 1952-54, 1963	8-19-81 9-16-81	2.7 12
02027670	Buffalo River near Amherst, Va.	Lat 37°36'18", long 79°01'35", Amherst County, at bridge on U.S. Highway 29, 0.7 mi northeast of Amherst, and 1.2 mi below Tribulation Creek.	-	1942, 1952-54, 1963	8-19-81 9-17-81	20 52

* Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi²)	Period of record	Measurements	
					Date	Discharge (ft³/s)
		JAMES RIVER BASIN--Continued				
02028450	Sycamore Creek near Howardsville, Va.	Lat 37°40'43", long 78°39'55", Buckingham County, at bridge on State Highway 601, 0.2 mi above mouth, and 3.9 mi south of Howardsville.	-	-	9- 2-81	1.2
					9-17-81	2.7
02028700	Cove Creek near Covesville, Va.	Lat 37°52'06", long 78°43'32", Albemarle County, at culvert on U.S. Highway 29, 1.7 mi southwest of Covesville, and 3.0 mi above Hickory Creek.	4.0	1942, 1944, 1950-54	8-19-81	1.6
					9-17-81	1.2
02029200	North Fork Hardware River at Red Hill, Va.	Lat 37°58'03", long 78°37'04", Albemarle County, at bridge on U.S. Highway 29, 0.1 mi below Middle Branch, and 0.5 mi northwest of Red Hill.	11.0	1942, 1950-54, 1956, 1963	8- 5-81	2.2
					9-17-81	3.2
02030150	Slate River at Buckingham, Va.	Lat 37°33'08", long 78°33'53", Buckingham County, at bridge on U.S. Highway 60, just below Horsepen Creek, and 0.3 mi west of Buckingham.	-	1942, 1952-54, 1963	8-27-81	8.7
					9-17-81	23
02030300	Slate River near Dillwyn, Va.	Lat 37°37'08", long 78°29'10", Buckingham County, at bridge on State Highway 20, 0.3 mi below Flat Creek, and 5.2 mi north of Dillwyn.	-	1942, 1952-54, 1963	9- 2-81	20
					9-17-81	64
02030850	Stockton Creek near Crozet, Va.	Lat 38°02'37", long 78°41'54", Albemarle County, at bridge on State Highway 635, 1.5 mi south of Crozet, and 2.4 mi above mouth.	-	1953-54, 1963	8- 5-81	3.2
					9-18-81	25
02031500	North Fork Moormans River near White Hall, Va.	Lat 38°08'25", long 78°45'05", Albemarle County, off State Highway 614, 0.2 mi above Charlottesville Reservoir, and 5.0 mi northwest of White Hall.	11.4	1944-46, 1951-63*, 1969	9-18-81	4.7
02033750	Buck Island Creek below Houchins Creek near Simeon, Va.	Lat 37°57'13", long 78°24'15", Albemarle County, 100 ft below bridge on State Highway 729, just below Houchins Creek, and 3.5 mi southeast of Simeon.	-	-	8- 5-81	.33
					9-18-81	1.9
02034150	Little Byrd Creek near Fife, Va.	Lat 37°45'50", long 78°05'24", Goochland County, at culvert on State Highway 667, 1.8 mi above mouth, and 1.9 mi northwest of Fife.	-	-	7- 9-81	7.8
					9-23-81	.43
02034300	Little Willis River at Curdsville, Va.	Lat 37°24'38", long 78°27'35", Buckingham County, at bridge on U.S. Highway 15, 0.4 mi southwest of Curdsville, and 1.3 mi above Gills Creek.	7.07	1952-54, 1957, 1963	9-15-81	.96
02035075	Maxey Mill Creek near Ballsville, Va.	Lat 37°31'07", long 78°07'31", Cumberland County, at bridge on State Highway 654, 1.0 mi above mouth, and 3.6 mi northwest of Ballsville.	-	-	8-27-81	1.1
					9-14-81	.86
02035460	Big Lickinghole Creek at Rt. 613, near Goochland, Va.	Lat 37°43'52", long 77°57'21", Goochland County, at culvert on State Highway 613, 3.3 mi above Little Lickinghole Creek, and 5.3 mi northwest of Goochland.	-	-	7- 9-81	9.2
					9-23-81	1.5
02036700	Bernards Creek near Manakin, Va.	Lat 37°33'25", long 77°40'33", Powhatan County, at bridge on State Highway 711, 1.6 mi above mouth, and 3.7 mi southeast of Manakin.	-	-	7- 9-81	1.8
					9-14-81	0

* Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued				
02038730	Fourmile Creek near Richmond Heights, Va.	Lat 37°27'16", long 77°19'55", Henrico County, at culvert on Doran Road, 3.9 mi east of Richmond Heights, and 4.9 mi above mouth.	4.01	1980	6-22-81 9-17-81	0.98 .69
02038780	Johnson Creek near Rivermont, Va.	Lat 37°19'58", long 77°19'37", Chesterfield County, at culvert on State Highway 746, 1.4 mi northwest of Rivermont, and 2.4 mi above mouth.	6.22	1980	10-15-80 6-15-81 9-23-81	*.15 .12 .04
02039600	Briery Creek near Rice, Va.	Lat 37°16'49", long 78°21'48", Prince Edward County, at bridge on U.S. Highway 460 (Bus), 0.9 mi above mouth, and 4.1 mi west of Rice.	-	1944, 1952-54, 1963	7- 8-81 9-15-81	8.2 2.9
02039700	Sandy River near Rice, Va.	Lat 37°16'31", long 78°19'17", Prince Edward County, at bridge on U.S. Highway 460, 1.6 mi west of Rice, and 2.0 mi above confluence with Bush River.	-	1944, 1952-54, 1963	7- 8-81 9-15-81	8.7 1.8
02039800	Angola Creek near Angola, Va.	Lat 37°22'16", long 78°17'15", Cumberland County, at bridge on State Highway 664, 3.2 mi above mouth, and 3.9 mi southwest of Angola.	-	-	7- 8-81 9-15-81	.56 1.2
02040500	Flat Creek near Amelia, Va.	Lat 37°23'27", long 78°03'45", Amelia County, at bridge on State Highway 681, 6.0 mi northwest of Amelia.	73.0	1946-48‡, 1952-54, 1963	7- 8-81 9-14-81	14 3.4
02040900	Little Creek near Denaro, Va.	Lat 37°13'32", long 78°01'10", Nottoway County, at bridge on State Highway 611, 2.3 mi southwest of Denaro, and 3.5 mi above mouth.	-	-	7-13-81 9-15-81	.64 .44
02041150	Winterpock Creek near Winterpock, Va.	Lat 37°21'38", long 77°42'56", Chesterfield County, at culvert on State Highway 664, 1.2 mi north of Winterpock, and 4.1 mi above Surline Branch.	-	-	6-25-81 9-14-81	.013 0
02041400	Whipponock Creek near Church Road, Va.	Lat 37°11'45", long 77°39'23", Dinwiddie County, at culvert on State Highway 627, 1.3 mi northwest of Church Road.	-	-	6-25-81 9-17-81	.14 .80
02042050	Franks Branch at Rt. 626, near Colonial Heights, Va.	Lat 37°16'42", long 77°28'35", Chesterfield County, at bridge on State Highway 626, 1.0 mi above mouth, and 2.5 mi west of Colonial Heights.	-	-	6-24-81 9-17-81	.94 1.7
02042140	Powell Creek at Garysville, Va.	Lat 37°14'54", long 77°09'09", Prince George County, at bridge on State Highway 10, 4.7 mi above mouth, and at Garysville.	14.6	1980	10-15-80 6-15-81 9-23-81	*3.4 3.3 1.5
02042160	West Run at Barnetts, Va.	Lat 37°21'30", long 77°09'56", Charles City County, at culvert on State Highway 625, 1.0 mi above Harrison Lake, and 10 mi southwest of Barnetts.	20.3	1968, 1980	6-22-81 9-17-81	3.0 12
02042200	Glebe Creek tributary near Charles City, Va.	Lat 37°22'05", long 77°04'15", Charles City County, at culvert on State Highway 155, 0.7 mi above mouth, and 1.6 mi north of Charles City.	.7	1948, 1953-55, 1980	6-19-81 9-17-81	0 0
02042210	Courthouse Creek at Charles City, Va.	Lat 37°20'37", long 77°04'14", Charles City County, at bridge on State Highway 5, 0.8 mi above Parrish Hill Creek, and at Charles City.	9.79	1968, 1980	6-19-81 9-17-81	3.3 3.0

* Base flow.
‡ Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued				
02042450	White Oak Swamp near White Oak Swamp, Va.	Lat 37°29'03", long 77°16'05", Henrico County, at culvert on Poplar Springs Road, 0.1 mi below White Oak Swamp Creek, and 2.0 mi southeast of White Oak Swamp.	8.26	1980	6-22-81 9-29-81	14 (c)
02042600	Rumley Marsh near Providence Forge, Va.	Lat 37°28'32", long 77°02'49", New Kent County, at bridge on forest road, 2.3 mi north of Providence Forge, and 2.5 mi above U.S. Highway 60.	11.9	-	10-30-80 6-19-81	11.2 4.9
02042700	Collins Run near Providence Forge, Va.	Lat 37°23'59", long 77°02'54", Charles City County, at culvert on State Highway 155, 2.5 mi above mouth, and 2.9 mi south of Providence Forge.	2.84	1948, 1953-56, 1967, 1980	6-19-81 9-17-81	.76 1.6
02042782	Powhattan Creek at Five Forks, Va.	Lat 37°14'57", long 76°46'23", James City County, at bridge on State Highway 5, 2.7 mi north of Jamestown, and 4.3 mi above mouth on Sandy Bay.	19.7	1980	10-20-80 6-19-81 9-16-81	7.0 .75 .39
02042784	Grays Creek near Surry, Va.	Lat 37°10'06", long 76°51'25", Surry County, at bridge on State Highway 618, 2.0 mi northwest of Surry, and 5.4 mi above mouth.	8.09	1980	10-15-80 6-15-81 9-23-81	3.7 2.2 1.6
02042787	Skiffes Creek near Lee Hall, Va.	Lat 37°12'48", long 76°36'50", James City County, at culvert on Plantation Road, 0.9 mi above Skiffes Creek Reservoir, and 3.2 mi northwest of Lee Hall.	1.32	1980	11-17-80 6-19-81 9-16-81	.13 <.01 3.6
02042790	Beaverdam Creek near Yorktown, Va.	Lat 37°12'09", long 76°31'16", York County, at bridge on Yorktown Tour Drive, 0.5 mi below confluence of Great Run and Baptist Run, and 2.2 mi south of Yorktown.	5.46	1980	11-17-80 6-19-81 9-17-81	.53 .76 .90
02042794	Cypress Creek near Benns Church, Va.	Lat 36°55'22", long 76°36'15", Isle of Wight County, at bridge on State Highway 620, 1.5 mi southwest of Benns Church, and 5.3 mi above mouth.	-	1980	10-16-80 6-18-81 9-21-81	.43 .99 1.9
02042890	Drum Point Creek at Boone, Va.	Lat 36°50'44", long 76°26'03", Chesapeake City, at culvert on Pughsville Road, 0.3 mi north of Boone, and 2.7 mi above mouth.	.61	1980	10-16-80 6-18-81 9-21-81	0 (c) (c)
		CHESAPEAKE BAY				
02042950	Great Neck Creek tributary at Oceana, Va.	Lat 36°50'03", long 76°00'47", Virginia Beach City, at culvert on Oceana Blvd., 0.45 mi above mouth, and 2.0 mi east of London Bridge.	.90	1980	10-16-80 6-18-81 9-21-81	.30 .32 .64
		CURRITUCK SOUND				
02043000	Beggars Bridge Creek near Pleasant Ridge, Va.	Lat 36°40'57", long 76°00'37", Virginia Beach City, at culvert on Dawley Road, 1.0 mi southeast of Pleasant Ridge, and 2.2 mi above mouth.	.76	1980	10-16-80 6-18-81 9-21-81	(c) <.01 (c)
02043100	Albemarle and Chesapeake Canal tributary near Great Bridge, Va.	Lat 36°41'07", long 76°13'17", Virginia Beach City, at culvert on Etheridge Road, 1.7 mi southeast of Great Bridge, and 2.4 mi above mouth.	3.80	1980	10-16-80 6-18-81 9-21-81	(c) .83 .65

< Less than.
c Ponded, no apparent flow.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Measurements Date	Measurements Discharge (ft^3/s)
		CHOWAN RIVER BASIN				
02044300	Little Nottoway River near Blackstone, Va.	Lat 37°02'25", long 78°02'07", Nottoway County, at bridge on State Highway 40, 2.2 mi above mouth, and 2.4 mi southwest of Blackstone.	-	1942, 1952-54	7-13-81 9-21-81	11 9.3
02045800	White Oak Creek near Hebron, Va.	Lat 37°07'40", long 77°48'54", Dinwiddie County, at bridge on State Highway 620, 1.2 mi southwest of Hebron.	-	-	6-25-81 9-21-81	.38 .82
02046230	Sappony Creek at Rt. 681, near Stony Creek, Va.	Lat 36°56'36", long 77°27'08", Sussex County, at bridge on State Highway 681, 1.5 mi above mouth, and 2.5 mi west of Stony Creek.	-	-	6-24-81 9-14-81	3.6 (c)
02046300	Hatchet Run near Reams, Va.	Lat 37°07'23", long 77°28'45", Dinwiddie County, at bridge on State Highway 613, 2.1 mi above Arthur Swamp, and 4.3 mi northwest of Reams.	-	-	6-24-81 9-14-81	1.5 .30
02046370	Rowanty Creek near Stony Creek, Va.	Lat 36°58'57", long 77°22'53", Sussex County, at bridge on State Highway 602, 1.7 mi below Bolling Swamp, and 2.2 mi northeast of Stony Creek.	-	-	6-24-81 9-14-81	9.8 (c)
02046480	Hunting Quarter Swamp near Sussex, Va.	Lat 36°53'25", long 77°29'54", Sussex County, at culvert on State Highway 735, 1.9 mi south of Sussex.	9.25	1980	10-17-80 6-16-81 9-15-81	0 (c) (c)
02046500	Anderson Branch at Sussex, Va.	Lat 36°55'10", long 77°15'45", Sussex County, at bridge on State Highway 40, 1.0 mi east of Sussex, and 1.7 mi above mouth.	5.35	1949-56*, 1969	9- 4-80 10-17-80 6-16-81 9-15-81	0 0 .21 0
02046700	Raccoon Creek near Sebrell, Va.	Lat 36°48'11", long 77°12'28", Southampton County, at bridge on State Highway 608, 3.2 mi above mouth, and 4.6 mi northwest of Sebrell.	65.0	1942, 1952-54, 1978	9-14-80 10-17-80 6-16-81 9-24-81	0 0 (c) (c)
02046720	Tryall Creek near Smoky Ordinary, Va.	Lat 36°47'03", long 77°39'55", Brunswick County, at bridge on State Highway 607, 1.6 mi above confluence with Cooks Branch, and 5.0 mi southeast of Smoky Ordinary.	-	-	6-25-81 9-14-81	.016 0
02046750	Three Creek at Rt. 616, near Emporia, Va.	Lat 36°43'25", long 77°31'13", Greensville County, at bridge on State Highway 616, 1.5 mi below Maelins Creek, and 1.6 mi northeast of Emporia.	67.2	-	6-25-81 9-14-81	2.2 1.2
02046830	Applewhite Swamp near Drewryville, Va.	Lat 36°43'36", long 77°21'03", Southampton County, at culvert on State Highway 612, 2.6 mi northwest of Drewryville.	5.96	1980	10-17-80 6-17-81 9-24-81	0 .55 .03
02047050	Assamoosick Swamp near Homeville, Va.	Lat 36°58'30", long 77°09'11", Sussex County, at bridge on State Highway 40, 2.4 mi northeast of Homeville.	22.0	1980	10-17-80 6-16-81 9-23-81	0 (c) .80
02047100	Assamoosick Swamp tributary near Sebrell, Va.	Lat 36°46'22", long 77°05'57", Southampton County, at bridge on State Highway 35, 0.7 mi above Indian Branch, and 1.5 mi southeast of Sebrell.	86.4	1942-43, 1952-54, 1980	6-16-81 9-24-81	29 6.0
02047300	Nottoway Swamp near Story, Va.	Lat 36°43'22", long 76°59'43", Southampton County, at bridge on State Highway 611, 1.6 mi northeast of Story.	12.2	1980	10-17-80 6-17-81 9-22-81	0 .96 .09

* Operated as a continuous-record gaging station.
c Ponded, no apparent flow.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		CHOWAN RIVER BASIN--Continued				
02047360	Mill Creek near Sunbeam, Va.	Lat 36°34'12", long 77°02'19", Southampton County, at bridge on State Highway 684, 1.2 mi southwest of Sunbeam, and 1.5 mi above Windbourne Millpond.	23.7	1980	10-17-80 6-17-81 9-22-81	0 (c) (c)
02047400	Blackwater Swamp near Disputanta, Va.	Lat 37°08'02", long 77°12'30", Prince George County, at bridge on State Highway 625, 1.0 mi northeast of Disputanta.	75.6	1942, 1952-53, 1980	10-15-80 6-15-81 9-23-81	0 (c) 0
02047420	Warwick Swamp near Disputanta, Va.	Lat 37°05'34", long 77°09'08", Sussex County, at bridge on State Highway 613, 0.9 mi above mouth, and 4.5 mi southeast of Disputanta.	38.2	1980	10-15-80 6-15-81 9-23-81	0 (c) (c)
02047440	Otterdam Swamp near Waverly, Va.	Lat 37°04'57", long 77°03'19", Surry County, at culvert on State Highway 40, 1.2 mi above mouth, and 3.2 mi northeast of Waverly.	22.4	1980	10-15-80 6-15-81 9-23-81	0 (c) (c)
02047460	Pigeonroost Swamp near Elberon, Va.	Lat 37°06'35", long 76°53'42", Surry County, at culvert on State Highway 618, 2.5 mi north of Elberon.	5.98	1980	10-15-80 6-15-81 9-23-81	.016 .41 .26
02047480	Cypress Swamp near Dendron, Va.	Lat 37°03'18", long 76°55'15", Surry County, at bridge on State Highway 31, 0.2 mi northeast of Dendron, and 2.8 mi above mouth.	54.4	1980	10-15-80 6-15-81 9-23-81	0 (c) (c)
02047520	Rattlesnake Swamp at Raynor, Va.	Lat 36°57'30", long 76°46'25", Isle of Wight County, at bridge on State Highway 625, 0.9 mi above Mill Swamp, and 0.9 mi northeast of Raynor.	40.3	1980	10-15-80 6-16-81 9-24-81	0 (c) (c)
02048460	Round Hill Swamp near Berlin, Va.	Lat 36°51'02", long 76°56'21", Southampton County, at bridge on State Highway 614, 1.5 mi above mouth, and 2.2 mi east of Berlin.	25.6	1980	10-17-80 6-16-81 9-24-81	0 (c) (c)
02048500	Seacock Swamp at Unity, Va.	Lat 36°49'15", long 76°51'56", Southampton County, at bridge on State Highway 635, 0.7 mi northeast of Unity, and 1.8 mi above mouth.	102	1942-49*, 1952, 1976, 1978	9- 4-80 10-17-80 6-16-80 9-24-80	0 0 (c) (c)
02049700	Cypress Swamp near Burdette, Va.	Lat 36°44'29", long 76°56'18", Southampton County, at culvert on State Highway 611, 1.8 mi above mouth, and 3.1 mi southwest of Burdette.	8.55	1950-56, 1968, 1980	6-17-81 9-21-81	.84 .28
02050150	Quaker Swamp near Lummis, Va.	Lat 36°41'42", long 76°43'35", Suffolk City, at culvert on U.S. Highway 58, 1.4 mi west of Lummis.	4.02	1980	10-16-80 6-18-81 9-21-81	0 (c) (c)
02050115	Chapel Swamp near Somerton, Va.	Lat 36°34'34", long 76°48'28", Suffolk City, at bridge on State Highway 759, 0.5 mi above mouth, and 3.2 mi west of Somerton.	17.9	1980	6-17-81 9-22-81	(c) 2.4
02050130	Beaverdam Creek near Cleopus, Va.	Lat 36°33'10", long 76°50'30", Suffolk City, at bridge on State Highway 668, 0.5 mi above mouth, and 2.8 mi south of Cleopus.	8.77	1965-68, 1970, 1980	10-16-80 6-17-81 9-22-81	0 (c) 0
02051100	South Meherrin River near Chase City, Va.	Lat 36°51'34", long 78°25'22", Lunenburg and Mecklenburg Counties, at bridge on State Highway 49, 4.0 mi northeast of Chase City.		1944, 1952-54	8-10-81 9-22-81	2.2 1.9

* Operated as a continuous-record gaging station.
c Ponded, no apparent flow.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi²)	Period of record	Measurements Date	Measurements Discharge (ft³/s)
		CHOWAN RIVER BASIN--Continued				
02051200	Flat Rock Creek near Kenbridge, Va.	Lat 36°53'58", long 78°07'22", Lunenburg County, at bridge on State Highway 647, 2.5 mi southwest of Bishops Corner, and 4.3 mi south of Kenbridge.	-	1952-54	7- 7-81	19
					9-21-81	3.6
02051300	Evans Creek near Brodnax, Va.	Lat 36°44'07", long 77°57'34", Brunswick County, at bridge on State Highway 623, 0.9 mi above mouth, and 4.0 mi northeast of Brodnax.	-	-	7- 7-81	2.9
					9-16-81	1.3
02052100	Rattlesnake Creek near Ankum, Va.	Lat 36°36'48", long 77°52'25", Brunswick County, 100 ft downstream from State Highway 46, 0.4 mi above Houses Creek, and 0.8 mi northeast of Ankum.	-	-	7- 7-81	.61
					9-14-81	.14
02053030	Mill Swamp near Claresville, Va.	Lat 36°36'32", long 77°29'10", Greensville County, at bridge on State Highway 660, 2.2 mi southwest of Claresville, and 3.8 mi above Taylors Millpond.	-	-	7- 7-81	.25
					9-14-81	0
02053100	Tarrara Creek at Boykins, Va.	Lat 36°35'20", long 77°12'03", Southampton County, at bridge on State Highway 35, 3.7 mi above mouth, and at Boykins.	57.5	1980	10-17-80	.26
					6-17-81	(c)
					9-22-81	.43
		ROANOKE RIVER BASIN				
02056700	Beaverdam Creek near Hardy, Va.	Lat 37°13'28", long 79°45'23", Bedford County, at culvert on State Highway 757, 1.1 mi below West Fork, and 3.0 mi east of Hardy.	-	-	8-25-81	.53
					9-21-81	1.8
02056850	Maggodee Creek near Boones Mill, Va.	Lat 37°07'57", long 79°58'20", Franklin County, at bridge on private road, 0.5 mi south of Murray Gap, and 1.6 mi northwest of Boones Mill.	-	-	8-25-81	.28
					9-22-81	1.2
02057050	Gills Creek at Rt. 122, near Burnt Chimney, Va.	Lat 37°07'31", long 79°46'58", Franklin County, at bridge on State Highway 122, 2.4 mi northeast of Burnt Chimney.	-	1952-54	8-25-81	.73
					9-21-81	3.2
02057600	Pigg River at Rt. 40, near Rocky Mount, Va.	Lat 36°58'34", long 79°55'32", Franklin County, at bridge on State Highway 40, 1.0 mi west of Rocky Mount, and 1.8 mi above Story Creek.	-	1976	8-25-81	5.6
					9-22-81	12
02057750	Little Chestnut Creek near Sydnorsville, Va.	Lat 36°54'07", long 79°50'55", Franklin County, at bridge on State Highway 724, 1.3 mi northeast of Sydnorsville, just below confluence of North and South Forks, and 1.6 mi above mouth.	-	-	8-25-81	.52
					9-22-81	2.0
02058100	Turkeycock Creek at Sago, Va.	Lat 36°52'53", long 79°37'52", Pittsylvania County, at bridge on State Highway 969, 0.8 mi southeast of Sago, and 3.3 mi above mouth.	-	1953-54	8-27-81	2.5
					9-23-81	7.5
02059560	Shockoe Creek near Irving, Va.	Lat 37°18'46", long 79°40'34", Bedford County, at culvert on State Highway 755, 1.0 mi above mouth, and 3.1 mi south of Irving.	-	-	8-27-81	.016
					9-21-81	.17
02060400	Sycamore Creek at Sycamore, Va.	Lat 37°01'25", long 79°21'24", Pittsylvania County, at culvert on State Highway 643, at Sycamore, and 4.0 mi above Little Sycamore Creek.	-	-	8-27-81	.82
					9-14-81	.92

c Ponded, no apparent flow.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Measurements Date	Measurements Discharge (ft^3/s)
		ROANOKE RIVER BASIN--Continued				
02061000	Big Otter River near Bedford, Va.	Lat 37°21'50", long 79°25'10", Bedford County, at bridge on U.S. Highway 221, 4.0 mi northeast of Bedford, and 8.9 mi above Little Otter River.	116	1942, 1944-60*,	8-20-81 9-21-81	18 17
02061200	Little Otter River at Rt. 122, near Bedford, Va.	Lat 37°21'41", long 79°30'03", Bedford County, at bridge on State Highway 122, 0.4 mi north of Bedford.	-	1942, 1952-54, 1978	8-20-81 9-21-81	4.7 3.7
02062300	Seneca Creek near Long Island, Va.	Lat 37°06'23", long 79°07'22", Campbell County, at bridge on State Highway 633, at Marysville, 1.5 mi above mouth, and 2.6 mi northwest of Long Island.	-	-	9-14-81	11
02063400	Reddy Creek near Spring Mills, Va.	Lat 37°16'54", long 78°54'14", Appomattox County, at bridge on State Highway 679, 100 ft above mouth, and 2.3 mi north of Spring Mills.	-	1951-54, 1977	8-20-81 9-21-81	1.9 2.6
02065220	Catawba Creek at Clarkton, Va.	Lat 36°58'30", long 78°53'45", Halifax County, at bridge on State Highway 626, 0.2 mi above mouth, and 0.8 mi southeast of Clarkton.	-	-	8-12-81 9-14-81	7.4 6.1
02065400	Big Cub Creek near Madisonville, Va.	Lat 37°12'13", long 78°44'05", Charlotte County, at bridge on State Highway 701, 0.1 mi below Little Cub Creek, and 2.7 mi northwest of Madisonville.	-	-	8-25-81 9-15-81	5.9 8.8
02066450	Roanoke Creek near Charlotte Court House, Va.	Lat 37°03'27", long 78°35'03", Charlotte County, at bridge on State Highway 40, 0.1 mi below Dunnavant Creek, and 2.0 mi east of Charlotte Court House.	-	1953-54	8-12-81 9-15-81	8.4 1.8
02066500	Roanoke Creek at Saxe, Va.	Lat 36°55'49", long 78°39'56", Charlotte County, at bridge on State Highway 612, at Saxe, and 5.0 mi above mouth.	135	1942-43, 1946-72*,	8-12-81 9-22-81	21 15
02067100	Difficult Creek near Scottsburg, Va.	Lat 36°47'46", long 78°47'10", Halifax County, at bridge on U.S. Highway 360, 2.5 mi above Piney Creek, and 2.6 mi north of Scottsburg.	-	-	8-12-81 9-21-81	10 5.5
02069550	North Fork South Mayo River at Stuart, Va.	Lat 36°39'03", long 80°17'08", Patrick County, at bridge on U.S. Highway 58, 0.5 mi northwest of Stuart, and 1.5 mi above mouth.	-	1953-54	8-26-81 9-22-81	2.2 4.8
02069800	Grassy Branch near Sanville, Va.	Lat 36°42'03", long 80°05'48", Patrick County, at culvert on State Highway 721, 0.3 mi above mouth, and 2.5 mi southwest of Sanville.	-	-	8-26-81 9-22-81	.62 2.0
02071600	Smith River near Charity, Va.	Lat 36°48'18", long 80°12'04", Patrick County, at bridge on State Highway 704, 0.9 mi above Joint Crack Creek, and 1.4 mi southeast of Charity.	-	-	8-26-81 9-22-81	17 15
02071800	Nicholas Creek near Ferrum, Va.	Lat 36°52'11", long 80°03'10", Franklin County, at bridge on State Highway 605, 3.1 mi above Philpott Reservoir, and 4.1 mi southwest of Ferrum.	12.2	1949, 1951, 1953, 1955-64, 1969, 1971	8-26-81 9-22-81	.67 2.8

* Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		ROANOKE RIVER BASIN--Continued				
02072600	Reed Creek near Collinsville, Va.	Lat 36°45'17", long 79°54'48", Henry County, at bridge on State Highway 669, 1.0 mi north of Collinsville, and 2.9 mi above mouth.	-	-	8-26-81 9-23-81	1.1 2.4
02073500	Leatherwood Creek near Martinsville, Va.	Lat 36°38'10", long 79°47'30", Henry County, at bridge on State Highway 650, 1.7 mi above mouth, and 2.5 mi southeast of Martinsville.	68	1926-34*, 1953-54	8-26-81 9-23-81	5.7 14
02074450	Sandy River near Swansonville, Va.	Lat 36°44'23", long 79°36'54", Pittsylvania County, at bridge on State Highway 612, 0.1 mi below West Fork, and 2.0 mi west of Swansonville.	-	-	8-11-81 9-23-81	5.1 8.3
02075020	Fall Creek near Danville, Va.	Lat 36°40'42", long 79°24'13", Pittsylvania County, at bridge on State Highway 744, 2.4 mi north of Danville, and 2.8 mi above Edward Creek.	-	-	8-11-81 9-15-81	.25 .35
02075275	Sandy Creek near Ringgold, Va.	Lat 36°34'50", long 79°13'31", Pittsylvania County, at bridge on U.S. Highway 58, 1.2 mi above mouth, and 4.6 mi southeast of Ringgold.	-	1942	8-11-81 9-15-81	3.0 2.8
02075600	Birch Creek near Birch, Va.	Lat 36°42'12", long 79°13'03", Pittsylvania County, at bridge on State Highway 729, 1.2 mi below Gunther Branch, and 3.0 mi southwest of Birch.	-	-	8-11-81 9-15-81	2.3 1.9
02075900	Lawsons Creek near Turbeville, Va.	Lat 36°36'39", long 79°01'28", Halifax County, at culvert on State Highway 658, 0.7 mi below Long Branch, and 1.2 mi southeast of Turbeville.	8.7	1950-64, 1968, 1970-71	8-11-81 9-15-81	1.0 .97
02076300	Banister River at U.S. Highway 29, near Chatham, Va.	Lat 36°46'41", long 79°23'33", Pittsylvania County, at bridge on U.S. Highway 29, 1.6 mi below White Oak Creek, and 1.8 mi south of Chatham.	-	1942, 1953-54	8-11-81 9-15-81	14 12
02076650	Banister River near Mount Airy, Va.	Lat 36°54'39", long 79°11'00", Pittsylvania County, at bridge on State Highway 640, 2.2 mi south of Mount Airy.	-	1942, 1953-54	8-11-81 9-14-81	55 48
02076770	Sandy Creek at Meadville, Va.	Lat 36°49'32", long 79°01'39", Halifax County, at bridge on State Highway 832, 0.2 mi above mouth, and 0.7 mi south of Meadville.	-	1953-54	8-12-81 9-15-81	27 15
02078300	Aarons Creek near Nelson, Va.	Lat 36°35'12", long 78°43'00", Halifax and Mecklenburg Counties, at bridge on State Highway 604, 1.7 mi northwest of Nelson.	-	-	8-10-81 9-16-81	.039 .92
02078400	Bluestone Creek at Rt. 699, near Laconia, Va.	Lat 36°43'48", long 78°36'58", Mecklenburg County, at bridge on State Highway 699, 1.2 mi east of Laconia, and 3.4 mi south of Red Oak.	-	-	8-10-81 9-22-81	1.7 2.6
02079660	Jolly Hollow Branch at Boydton, Va.	Lat 36°40'38", long 78°23'13", Mecklenburg County, at bridge on State Highway 92, 0.3 mi north of Boydton, and 0.4 mi above Whetstone Branch.	3.60	1944-54, 1960	10- 8-81 9-16-81	.11 .29
02079665	Cox Creek at Baskerville, Va.	Lat 36°40'58", long 78°16'15", Mecklenburg County, at bridge on State Highway 669, 0.5 mi southeast of Baskerville.	-	-	8-10-81 9-16-81	.36 .32

* Operated as a continuous-record gaging station.

Discharge measurements made at low-flow partial-record stations during water year 1981--Continued

Station No.	Station Name	Location	Drainage area (mi^2)	Period of record	Measurements	
					Date	Discharge (ft^3/s)
		ROANOKE RIVER BASIN--Continued				
02079740	Great Creek near Marengo, Va.	Lat 36°36'22", long 78°05'05", Mecklenburg County, at bridge on State Highway 620, 0.7 mi above Hagood Creek, and 2.8 mi southeast of Marengo.	-	-	8-10-81 9-16-81	0.43 .85
		YADKIN RIVER BASIN				
02113550	Ararat River near Ararat, Va.	Lat 36°34'07", long 80°33'03", Patrick County, at bridge on State Highway 749, 1.6 mi upstream from VA-NC stateline, and 3.0 mi southwest of Ararat.	-	-	8-26-81 9-22-81	.90 6.7

Special study and miscellaneous sites

Discharge measurements in the following table were made at special study and miscellaneous sites throughout the State. Data for miscellaneous sites furnished by the Virginia State Water Control Board are noted by an "a/". Data collected as part of a special study on the effects of acid rain in the Shenandoah National Park are noted by a "b/".

Discharge measurements made at special study and miscellaneous sites during water year 1981

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		NASSAWADOX CREEK BASIN				
Nassawadox Creek a/	Chesapeake Bay	Lat 37°31'31", long 75°52'37", Northampton County, at culvert on State Highway 606, 2.7 mi upstream from Kelly Cove, and 3.5 mi north of Nassawadox.	h4.2	1968-80	11-11-80 2-19-81 5-20-81 8-19-81	1.01 1.59 2.70 .33
		POTOMAC RIVER BASIN				
Abrams Creek a/	Opequon Creek	Lat 39°10'37", long 78°08'08", Frederick County, 0.5 mi downstream from bridge on State Highway 657, 1.8 mi east of Winchester.	-	1977, 1979	2-19-81	*11.9
Muddy Creek a/	Dry River	Lat 38°28'02", long 78°58'32", Rockingham County, at bridge on U.S. Highway 33, 0.2 mi northwest of Hinton.	-	1963, 1976, 1979	8- 5-81 8-12-81	*.90 .76
War Branch a/	Muddy Creek	Lat 38°27'58", long 78°58'38", Rockingham County, 500 ft above confluence with Muddy Creek, 0.2 mi west of Hinton.	-	1979	8- 5-81 8-12-81	*.98 1.13
Muddy Creek a/	Dry River	Lat 38°27'53", long 78°58'34", Rockingham County, at bridge on State Highway 752, 0.2 mi southwest of Hinton.	-	1979	8- 5-81 8-12-81	*3.27 2.49
Muddy Creek a/	Dry River	Lat 38°27'42", long 78°58'42", Rockingham County, 0.4 mi downstream from bridge on State Highway 752, 0.4 mi southwest of Hinton.	-	-	8- 5-81	*3.10
Muddy Creek a/	Dry River	Lat 38°27'31", long 78°59'03", Rockingham County, 0.9 mi downstream from bridge on State Highway 752, 0.8 mi southwest of Hinton.	-	-	8- 5-81	*3.28
Muddy Creek a/	Dry River	Lat 38°27'15", long 78°59'18", Rockingham County, at bridge on private road 100 ft southeast of State Highway 752, 1.2 mi southwest of Hinton.	-	1979	8- 5-81 8-12-81 8-13-81	*3.59 2.92 3.34
Muddy Creek a/	Dry River	Lat 38°27'03", long 78°59'12", Rockingham County, 0.3 mi above bridge on State Highway 734, 1.3 mi southwest of Hinton.	-	-	8- 5-81	*3.56
Muddy Creek a/	Dry River	Lat 38°26'50", long 78°58'45", Rockingham County, at bridge on State Highway 734, 1.5 mi southwest of Hinton.	-	1979	8- 5-81 8-13-81	*4.24 5.45
Muddy Creek a/	Dry River	Lat 38°25'55", long 78°58'50", Rockingham County, at bridge on State Highway 737, 2.1 mi south of Hinton.	-	1979	8- 4-81 8- 5-81 8-13-81	*6.16 *6.05 5.20
North River a/	South Fork Shenandoah River	Lat 38°20'35", long 78°55'41", Rockingham County, 0.2 mi above Pleasant Run, 0.9 mi below bridge on Interstate Highway 81, and 1.2 mi southeast of Mount Crawford.	-	-	1-30-81	*46.1

* Base flow.
a Furnished by Virginia State Water Control Board.
h Approximately.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		POTOMAC RIVER BASIN--Continued				
Pleasant Run a/	North River	Lat 38°20'48", long 78°55'32", Rockingham County, at bridge on State Highway 867, 1,000 ft above mouth, and 1.1 mi southeast of Mount Crawford.	-	-	1-30-81	*1.60
North River a/	South Fork Shenandoah River	Lat 38°20'42", long 78°55'12", Rockingham County, at Chesapeake-Western R.R. bridge, 0.3 mi below Pleasant Run, and 1.5 mi southeast of Mount Crawford.	-	-	1-30-81	*56.6
01626900 Sawmill Run b/	South River	Lat 38°05'46", long 78°48'38", Augusta County, at bridge on State Highway 611, 2.7 mi southeast of Dooms, and 3.3 mi from mouth.	3.62	-	8-19-81 9-22-81	.21 1.4
01627000 Mine Branch b/	South River	Lat 38°08'36", long 78°48'54", Augusta County, at culvert on State Highway 612, 1.6 mi southeast of Crimora, and 2.5 mi from mouth.	1.26	-	8-19-81 9-22-81	0 0
01627100 Meadow Run b/	South River	Lat 38°09'29", long 78°48'38", Augusta County, at side of Riprap Trail, 500 ft above Shenandoah National Park boundary, and 1.7 mi east of Crimora.	3.45	-	8-19-81 9-22-81	.29 .09
01627400 Paine Run b/	South River	Lat 38°11'55", long 78°47'38", Augusta County, 100 ft below ford on State Highway 614, 2.5 mi southeast of Harriston, and 2.7 mi from mouth.	4.92	-	9-23-81	.34
01628050 Madison Run b/	South Fork Shenandoah River	Lat 38°15'05", long 78°44'50", Rockingham County, 250 ft south of Madison Run Road, 3.9 mi east of Grottoes, and 5.2 mi from mouth.	2.00	-	8-18-81 9-23-81	.05 .08
01628080 Madison Run b/	South Fork Shenandoah River	Lat 38°15'24", long 78°46'06", Rockingham County, at Shenandoah National Park boundary, 2.5 mi east of Grottoes, and 3.8 mi from mouth.	5.78	1968	8-18-81 9-23-81	.16 .38
01628300 Lower Lewis Run b/	South Fork Shenandoah River	Lat 38°18'06", long 78°44'02", Rockingham County, at ford, 2.1 mi from mouth, and 2.2 mi east of Lynnwood.	1.19	-	8-19-81 9-23-81	0 0
01628350 Upper Lewis Run b/	Lower Lewis Run	Lat 38°17'35", long 78°44'55", Rockingham County, at ford, 1.0 mi from mouth, and 1.7 mi southeast of Lynnwood.	1.58	-	8-19-81 9-23-81	0 0
01628700 Twomile Run b/	South Fork Shenandoah River	Lat 38°20'04", long 78°40'20", Rockingham County, 200 ft downstream from Shenandoah National Park boundary, 2.1 mi from mouth, and 4.1 mi southeast of McGaheysville.	2.17	-	8-19-81 9-23-81	0 .17
01628900 Unnamed tributary b/	Hawksbill Creek	Lat 38°20'47", long 78°34'35", Rockingham County, at side of State Highway 626, 1.5 mi south of Swift Run, and 2.0 mi from mouth.	1.32	-	8-18-81 9-23-81	.13 .17
01628910 West Swift Run b/	Elk Run	Lat 38°21'55", long 78°34'47", Rockingham County, at bridge on State Highway 628, 0.2 mi southeast of Swift Run, and 2.6 mi from mouth.	.96	-	8-18-81 9-23-81	.12 .06

* Base flow.
a Furnished by Virginia State Water Control Board.
b Effects of acid rain in the Shenandoah National Park.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

POTOMAC RIVER BASIN--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
01629120 East Branch Naked Creek b/	Naked Creek	Lat 38°28'07", long 78°29'50", Page County, at side of road, 1.6 mi east of Jollett, and 1.7 mi from mouth.	4.58	-	8-11-81 9-23-81	4.2 .56
01629130 Big Creek b/	South Branch Naked Creek	Lat 38°27'37", long 78°29'35", Page County, at bridge on State Highway 759, 0.2 mi above Little Creek, and 1.8 mi east of Jollett.	2.43	-	8-11-81 9-23-81	1.1 .20
01629150 South Branch Naked Creek b/	Naked Creek	Lat 38°25'34", long 78°32'51", Page County, at side of Big Ugly Run Trail, 0.2 mi below Big Ugly Run, and 1.6 mi southeast of Furnace.	8.72	-	8-11-81 9-23-81	1.3 .36
01629920 Unnamed tributary b/	Little Hawksbill Creek	Lat 38°33'23", long 78°25'55", Page County, 200 ft above culvert on State Highway 611, 0.5 mi from mouth, and 2.0 mi south of Ida.	.78	-	8-21-81 9-21-81	.08 .10
01629950 East Hawksbill Creek b/	Hawksbill Creek	Lat 38°34'53", long 78°24'52", Page County, at side of State Highway 629, 0.7 mi southeast of Ida, and 7.2 mi from mouth.	4.03	-	8-21-81 9-21-81	.24 .11
01630100 South Fork Dry Run b/	Dry Run	Lat 38°37'37", long 78°23'23", Page County, at culvert on State Highway 696, 1.5 mi from mouth, and 2.8 mi southeast of Fairview.	1.53	-	9-21-81	.02
01630200 North Fork Dry Run b/	Dry Run	Lat 38°38'41", long 78°22'09", Page County, at culvert on State Highway 669, 1.9 mi from mouth, and 2.8 mi southwest of Thornton Gap.	2.15	-	8-10-81 9-21-81	.42 .11
01630542 Pass Run b/	South Fork Shenandoah River	Lat 38°39'05", long 78°21'14", Page County, at bridge on State Highway 669, 1.8 mi west of Thornton Gap, and 2.5 mi above Rocky Branch.	2.00	-	8-10-81 9-21-81	.47 .29
01630543 Rocky Branch b/	Pass Run	Lat 38°41'06", long 78°21'10", Page County, at culvert on State Highway 612, 2.2 mi from mouth, and 2.2 mi northwest of Thornton Gap.	2.76	-	8-11-81 9-21-81	.20 .13
01630585 Jeremys Run b/	South Fork Shenandoah River	Lat 38°43'18", long 78°23'15", Page County, at bridge on State Highway 611, 1.6 mi southeast of Oak Hill, and 3.8 mi from mouth.	9.72	-	8-12-81 9-21-81	.57 .08
01630649 Phils Arm Run b/	Gooney Run	Lat 38°47'34", long 78°14'29", Warren County, 1,200 ft above State Highway 631, 0.3 mi from mouth, and 1.3 mi south of Browntown.	.98	-	8-12-81 9-22-81	.58 .17
01630650 Unnamed tributary b/	Phils Arm Run	Lat 38°47'33", long 78°14'26", Warren County, 50 ft above mouth, 1.3 mi south of Browntown.	.38	-	8-12-81 9-22-81	.08 .03
01630660 Smith Creek b/	Gooney Run	Lat 38°48'23", long 78°11'55", Warren County, 150 ft above end of State Highway 634, 1.8 mi east of Browntown, and 2.4 mi from mouth.	.78	-	8-20-81 9-22-81	.14 .09

b Effects of acid rain in the Shenandoah National Park.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		POTOMAC RIVER BASIN--Continued				
01630670 Greasy Run b/	Gooney Run	Lat 38°47'17", long 78°16'03", Warren County, at side of State Highway 631, 2.3 mi southwest of Browntown, and 3.4 mi from mouth.	1.70	-	8-12-81 9-22-81	0.64 .23
01630680 Lands Run b/	Gooney Run	Lat 38°49'20", long 78°12'22", Warren County, at Shenandoah National Park boundary, 1.6 mi northeast of Browntown, and 2.0 mi from mouth.	1.38	-	8-20-81 9-22-81	.18 .14
North Fork Shenandoah River a/	Shenandoah River	Lat 38°37'38", long 78°47'00", Rockingham County, 1.0 mi southwest of Timberville, 1.6 mi upstream from bridge on State Highway 42.	-	1979-80	10- 2-80	*17.3
North Fork Shenandoah River a/	Shenandoah River	Lat 38°37'49", long 78°47'07", Rockingham County, 0.9 mi southwest of Timberville, 1.3 mi upstream from bridge on State Highway 42.	-	1980	10- 2-80	*16.1
North Fork Shenandoah River a/	Shenandoah River	Lat 38°38'08", long 78°47'17", Rockingham County, 0.8 mi upstream from bridge on State Highway 42, 0.8 mi west of Timberville.	-	1980	10- 2-80 10-20-80 10-20-80 10-29-80	*15.1 *14.4 *13.9 *16.0
Fort Run a/	North Fork Shenandoah River	Lat 38°38'13", long 78°47'07", Rockingham County, at mouth, 0.6 mi upstream from State Highway 42, and 0.6 mi west of Timberville.	-	1980	10- 2-80	*.84
North Fork Shenandoah River a/	Shenandoah River	Lat 38°38'07", long 78°46'43", Rockingham County, 0.3 mi upstream from bridge on State Highway 42, 0.4 mi southwest of Timberville.	-	1980	10- 2-80	*17.5
Honey Run a/	North Fork Shenandoah River	Lat 38°38'22", long 78°46'35", Rockingham County, 0.2 mi upstream from mouth, 0.2 mi west of Timberville.	-	1980	10- 2-80	*1.06
North Fork Shenandoah River a/	Shenandoah River	Lat 38°38'15", long 78°46'27", Rockingham County, at bridge on State Highway 42, 0.2 mi south of Timberville.	-	1980	10- 1-80 10- 2-80 10-20-80 10-29-80	*20.2 *19.5 *15.2 *21.0
01636202 Unnamed tributary b/	Happy Creek	Lat 38°51'17", long 78°10'49", Warren County, at culvert on State Highway 604, 800 ft from mouth, and 2.4 mi east of Glen Echo.	1.51	-	8-19-81 9-22-81	.43 .36
01636210 Happy Creek b/	Shenandoah River	Lat 38°54'20", long 78°11'10", Warren County, at bridge on Kerfoot Avenue, at Front Royal, 2.3 mi above Leach Run, and 2.9 mi from mouth.	14.0	1948-77‡	8-19-81 9-22-81	.51 .91
01643585 Tributary No. 1	Potomac River	Lat 39°12'32", long 77°28'39", Loudoun County, in farm pasture, 0.4 mi above mouth, and 3.0 mi east of Lucketts.	2.95	1979-80	10-10-80	*.08
01643600 Unnamed tributary	Limestone Branch	Lat 39°10'27", long 77°31'48", Loudoun County, at bridge on State Highway 661, 0.8 mi above mouth, and 4.5 mi northeast of Leesburg.	6.82	1979-80	10-10-80	*.97

* Base flow.
‡ Operated as a continuous-record gaging station.
a Furnished by Virginia State Water Control Board.
b Effects of acid rain in the Shenandoah National Park.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		POTOMAC RIVER BASIN--Continued				
01643610 Big Spring	Unnamed Potomac River tributary	Lat 39°08'34", long 77°32'46", Loudoun County, just upstream from bridge on U.S. Highway 15, 2.1 mi north of Leesburg.		1963, 1969	7- 7-80	d4.09
					8-10-81	1.78
					9-16-81	2.03
01643613 Unnamed tributary	Broad Run	Lat 39°08'05", long 77°28'14", Montgomery County, at culvert on Club Hollow Road, 0.4 mi above mouth, and 3.0 mi west of Poolesville, Md.	0.78	1979-80	10-10-80	*.007
					8-10-81	.04
Crooked Run	Goose Creek	Lat 38°54'53", long 77°53'22", Fauquier County, at mouth, at Delaplane.	14.6	-	8- 4-81	1.6
					9-15-81	.41
01643988 Little River	Goose Creek	Lat 39°00'25", long 77°36'53", Loudoun County, at bridge on U.S. Highway 15, 1.55 mi above Oatlands.	47.7	1942, 1968-69, 1979-80	10-10-80	*2.3
01643990 Howsers Branch	Goose Creek	Lat 39°00'12", long 77°36'30", Loudoun County, at private road bridge, 0.5 mi above mouth, and 1.9 mi south of Oatlands.	5.98	1979-80	10-10-80	0
					5-28-81	.54
01644255 South Fork Broad Run	Broad Run	Lat 38°57'10", long 77°32'09", Loudoun County, at culvert on State Highway 621, 0.55 mi above mouth, and at Arcola.	5.31	1968-69, 1979-80	10-10-80	*.04
01644277 Beaverdam Run	Broad Run	Lat 39°02'53", long 77°26'59", Loudoun County, at bridge on State Highway 607, 0.5 mi above mouth, and 2.5 mi northwest of Sterling.	11.2	1979-80	10- 9-80	(c)
					5-28-81	.49
01644280 Broad Run	Potomac River	Lat 39°03'35", long 77°26'22", Loudoun County, 100 ft below bridge on State Highway 7, 2.1 mi above mouth, and 2.8 mi north of Sterling.	76.1	1943, 1952-54, 1979-80	10- 9-80	*.35
					8-10-81	3.7
01644283 Tributary No. 2	Potomac River	Lat 39°03'38", long 77°24'06", Loudoun County, at side of foot trail 1,000 ft above mouth, 4.0 mi northeast of Sterling.	3.47	1979-80	10- 9-80	0
01644300 Sugarland Run	Potomac River	Lat 38°58'00", long 77°22'17", Fairfax County, at bridge on Washington Street (State Highway 606), 8.5 mi above mouth, and at Herndon.	3.36	1965-70, 1972-74, 1977, 1979-80	10- 8-80	*.15
01645050 Dry Seneca Creek	Seneca Creek	Lat 39°05'38", long 77°20'51", Montgomery County, at bridge on Montevideo Road, 0.35 mi above mouth, and 2.3 mi south of Dawsonville, Md.	19.2	1975-80	10-10-80	*.47
Broad Run	Occoquan River	Lat 38°45'37", long 77°37'09", Prince William County, 0.3 mi downstream from bridge on State Highway 675, 2.4 mi south of Gainesville.		-	10-16-80	47.1
					2-10-81	*a5.56
					2-10-81	a24.2
					2-10-81	a55.2
01656645 Unnamed tributary	Rocky Branch	Lat 38°45'43", long 77°34'57", Prince William County, at culvert on State Highway 619, 0.4 mi upstream from mouth, and 3.0 mi southeast of Gainesville.	2.32	1979-80	10- 8-80	0
					5-28-81	.25
					8-10-81	0

* Base flow.
a Furnished by Virginia State Water Control Board.
c Ponded, no apparent flow.
d Not previously published.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
POTOMAC RIVER BASIN--Continued						
01656650 Broad Run	Occoquan River	Lat 38°44'56", long 77°33'50", Prince William County, at bridge on State Highway 619, 0.2 mi upstream from Dawkins Branch, and 2.3 mi northwest of Bristow.	89.6	1968-71, 1975-81‡	10-16-81	44.3
Broad Run	Occoquan River	Lat 38°45'07", long 77°33'30", Prince William County, at bridge on State Highway 28, 0.8 mi northwest of Bristow, and 3.0 mi upstream from Cannon Branch.		1942, 1954, 1963, 1977	10-16-81	41.3
01656655 Kettle Run	Broad Run	Lat 38°43'28", long 77°36'32", Prince William County, at bridge on State Highway 708, 1.5 mi upstream from South Run, and 2.4 mi northwest of Nokesville.	11.9	1979-80	10- 9-80	0
01656659 Kettle Run	Broad Run	Lat 38°41'58", long 77°30'42", Prince William County, at bridge on State Highway 619, 0.75 mi above mouth, and 0.75 mi northwest of Brentsville.	25.0	1968, 1979-80	10- 9-80	0
01656670 Broad Run	Occoquan River	Lat 38°41'32", long 77°29'42", Prince William County, at bridge on State Highway 692, 1.5 mi above confluence with Cedar Run, and at Brentsville.	137	1943, 1951-54, 1979-80	10- 9-80	e25.6
01656705 Black Branch	Bull Run	Lat 38°54'46", long 77°37'43", Prince William County, at culvert on U.S. Highway 15, 1.6 mi above mouth, and 6.5 mi north of Haymarket.	3.05	1969-71, 1979-80	10- 9-80	*.15
01656715 Chestnut Lick	Bull Run	Lat 38°53'17", long 77°35'37", Prince William County, at bridge on State Highway 701, 0.9 mi above mouth, and 2.7 mi northwest of Catharpin.	11.1	1979-80	10- 9-80	<.01
01656743 Lick Branch	Little Bull Run	Lat 38°50'58", long 77°34'24", Prince William County, at culvert on State Highway 705, 1.0 mi above mouth, and at Catharpin.	3.06	1979-80	10- 9-80 5-28-81	0 .20
01656750 Little Bull Run	Bull Run	Lat 38°50'32", long 77°32'22", Prince William County, at bridge on State Highway 234, 0.1 mi above mouth, and 3.0 mi northwest of Bull Run.	27.2	1968-71, 1979-80	10- 9-80	*.55
01656768 Flat Branch	Bull Run	Lat 38°46'22", long 77°29'57", Prince William County, at culvert on State Highway 234, 2.3 mi above mouth, and at Manassas.	1.10	1979-80	6-29-80 10- 8-80	d0 0
01656930 Elklick Run	Cub Run	Lat 38°52'16", long 77°29'40", Fairfax County, at bridge on State Highway 609, 1.3 mi above mouth, and 3.7 mi southwest of Chantilly.	10.9	1979-80	10- 8-80	(c)
01657245 Russia Branch	Bull Run	Lat 38°45'42", long 77°26'37", Prince William County, at culvert on State Highway 616, 0.9 mi east of Manassas, and 1.4 mi above mouth.	1.47	1980	10- 8-80	*.03

* Base flow.
‡ Operated as a continuous-record gaging station.
< Less than.
c Ponded, no apparent flow.
d Not previously published.
e Water being released from storage in Lake Manassas upstream from site.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		RAPPAHANNOCK RIVER BASIN				
01662100 Hazel River b/	Rappahannock River	Lat 38°36'54", long 78°15'44", Rappahannock County, at Shenandoah National Park boundary, 700 ft below Sams Run, and 3.2 mi north of Nethers.	5.15	-	8-18-81 9-24-81	1.6 1.5
01662150 Hughes River b/	Hazel River	Lat 38°34'27", long 78°17'49", Madison County, at Nicholson Hollow Trail, 500 ft above Brokenback Run, and 1.0 mi west of Nethers.	9.92	1961	8-13-81 9-23-81	4.8 1.3
01662160 Brokenback Run b/	Hughes River	Lat 38°34'16", long 78°18'01", Madison County, at Shenandoah National Park boundary, 0.4 mi above mouth, and 1.1 mi west of Nethers.	4.30	-	8-13-81 9-23-81	2.0 .35
01662170 Rocky Run b/	Hughes River	Lat 38°34'39", long 78°16'57", Rappahannock County, at ford on State Highway 707, 0.4 mi from mouth, and 0.5 mi north of Nethers.	1.09	-	8-18-81 9-23-81	.033 .011
01662190 Ragged Run b/	Popham Run	Lat 38°31'56", long 78°17'44", Madison County, at side of State Highway 645, 1.7 mi from mouth, and 1.8 mi west of Etlan.	1.14	-	8-13-81 9-24-81	.25 .05
01662200 Unnamed tributary b/	Rosson Hollow Run	Lat 38°32'33", long 78°16'24", Madison County, at culvert on State Highway 646, 0.5 mi from mouth, and 1.3 mi north of Etlan.	1.05	-	8-13-81 9-24-81	.10 .008
01662350 North Fork Thornton River b/	Thornton River	Lat 38°41'36", long 78°16'33", Rappahannock County, 400 ft above Shenandoah National Park boundary, 3.3 mi above Piney River, and 3.4 mi northwest of Sperryville.	7.21	-	8-18-81 9-23-81	.29 .63
01662370 Piney River b/	North Fork Thornton River	Lat 38°41'46", long 78°15'30", Rappahannock County, at culvert on fire road, 2.1 mi from mouth, and 3.0 mi northwest of Sperryville.	5.58	-	8-18-81 9-23-81	.41 .80
01662480 Rush River b/	Covington River	Lat 38°44'29", long 78°13'08", Rappahannock County, at bridge on State Highway 622, 3.5 mi northwest of Washington, and 4.7 mi upstream from U.S. Highways 211 and 522.	2.34	-	8-18-81 9-23-81	.15 .41
01664100 Tinpot Run	Rappahannock River	Lat 38°32'25", long 77°48'19", Fauquier County, at bridge on U.S. Highways 15 and 29 (Business), 0.3 mi north of Remington, and 1.2 mi above mouth.	9.70	1979-80	10- 8-80	0
01664690 Browns Run	Marsh Run	Lat 38°32'44", long 77°43'12", Fauquier County, at private drive bridge off State Highway 644, 2.7 mi west of Elk Run, and 3.15 mi above mouth.	2.55	1979-80	10- 8-80 5-28-81	0 .008
01664750 Marsh Run	Rappahannock River	Lat 38°30'29", long 77°45'53", Fauquier County, at bridge on State Highway 668, 1.1 mi downstream from Browns Run, 3.0 mi southeast of Remington, and 4.0 mi above mouth.	37.3	1979-80	10- 8-80	0
01665100 Jonas Run	Mountain Run	Lat 38°29'20", long 77°54'08", Culpeper County, at culvert on State Highway 684, 2.3 mi above mouth, and 5.0 mi east of Culpeper.	11.4	1979-80	10- 8-80	*.03

* Base flow.
b Effects of acid rain in the Shenandoah National Park.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		RAPPAHANNOCK RIVER BASIN--Continued				
01665150 Mountain Run	Rappahannock River	Lat 38°27'37", long 77°48'50", Culpeper County, at bridge on State Highway 672, 2.2 mi southwest of Kellys Ford, and 5.7 mi above mouth.	118	1979-80	10- 8-80	*10.2
01665260 Rapidan River b/	Rappahannock River	Lat 38°26'38", long 78°22'11", Madison County, 300 ft west of Rapidan Road, 100 ft above Staunton River, and 1.4 mi north of Graves Mill.	9.74	-	8-17-81 9-24-81	6.9 3.5
01665270 Staunton River b/	Rapidan River	Lat 38°26'38", long 78°22'12", Madison County, 100 ft west of Rapidan Road, 100 ft above mouth, and 1.4 mi north of Graves Mill.	4.21	-	8-17-81 9-24-81	2.3 1.4
01665340 Conway River b/	Rapidan River	Lat 38°24'59", long 78°26'17", Greene and Madison Counties, at ford on State Highway 667, 1.1 mi downstream from Devils Ditch, and 3.3 mi north of Kinderhook.	9.66	-	8-17-81 9-24-81	3.5 1.7
01665343 Unnamed tributary b/	Conway River	Lat 38°24'16", long 78°26'22", Greene County, at culvert on State Highway 667, 30 ft from mouth, and 2.5 mi north of Kinderhook.	3.62	-	8-17-81 9-24-81	.97 1.2
01665440 South River b/	Rapidan River	Lat 38°22'01", long 78°27'38", Greene County, at bridge on State Highway 642, 30 ft upstream from Entry Run, and 1.2 mi north of McMullen.	4.94	1963	8-17-81 9-24-81	.89 .58
01665710 Unnamed tributary b/	Robinson River	Lat 38°32'23", long 78°20'53", Madison County, at culvert on White Oak Canyon Trail, 800 ft from mouth, 1.2 mi downstream from Negro Run, and 3.7 mi north of Syria.	5.41	-	8-20-81 9-24-81	1.1 .22
01665720 Unnamed tributary b/	Robinson River	Lat 38°32'45", long 78°20'37", Madison County, 100 ft above ford on private road, 0.5 mi from mouth, and 3.9 mi southwest of Nethers.	1.01	-	8-14-81 9-24-81	.10 .025
01665730 Cedar Run b/	Robinson River	Lat 38°32'22", long 78°21'01", Madison County, 200 ft below Shenandoah National Park boundary, 0.2 mi from mouth, and 3.7 mi north of Syria.	2.32	-	8-20-81 9-24-81	.19 .06
01665800 Rose River b/	Robinson River	Lat 38°30'55", long 78°21'59", Madison County, at Shenandoah National Park boundary, 1.8 mi above Strother Run, and 2.8 mi northwest of Syria.	9.15	-	8-13-81 9-24-81	10 2.1
01667650 Cedar Run	Rapidan River	Lat 38°21'48", long 77°58'32", Culpeper County, at bridge on U.S. Highway 522, 0.5 mi above mouth, and 7.0 mi south of Culpeper.	33.2	1952-54, 1979-80	10- 8-80 8-11-81	*.13 *.14
01667700 Sumerduck Run	Rapidan River	Lat 38°22'19", long 77°56'27", Culpeper County, at bridge on State Highway 647, 0.6 mi north of Racoon Ford, 2.3 mi above mouth, and 7.0 mi southeast of Culpeper.	11.0	1979-80	10- 8-80 8-11-81	<.01 *.02

* Base flow.
< Less than.
b Effects of acid rain in the Shenandoah National Park.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		RAPPAHANNOCK RIVER BASIN--Continued				
01667750 Potato Run	Rapidan River	Lat 38°24'55", long 77°55'00", Culpeper County, at bridge on State Highway 661, 2.0 mi southwest of Stevensburg, 2.8 mi above mouth, and 6.0 mi southeast of Culpeper.	6.67	1979-80	10- 8-80	0
					8-11-81	0
		PIANKATANK RIVER BASIN				
Unnamed tributary	Beaverdam Swamp	Lat 37°25'23", long 76°31'40", Gloucester County, at culvert on State Highway 616, 0.2 mi above mouth, and 0.5 mi north of Gloucester.	.24	-	9-25-81	0
		YORK RIVER BASIN				
Contrary Creek a/	North Anna River	Lat 38°02'07", long 77°54'10", Louisa County, 1.7 mi northeast of Mineral, 2.5 mi upstream from bridge on State Highway 522.	1.90	1975-80	10-16-80	*<.02
					12-10-80	*.61
					1-28-81	*.31
					3-19-81	*.52
					4-29-81	*.48
					6-16-81	*.13
					8-25-81	0
Contrary Creek a/	North Anna River	Lat 38°02'29", long 77°53'54", Louisa County, 2.0 mi upstream from bridge on State Highway 522, 2.2 mi northeast of Mineral.	2.34	1975-80	10-16-80	*.02
					12-10-80	*.72
					1-28-81	*.40
					3-19-81	*.48
					4-29-81	*.54
					6-16-81	*.13
					8-25-81	*<.02
Contrary Creek a/	North Anna River	Lat 38°02'52", long 77°53'31", Louisa County, 1.4 mi upstream from bridge on State Highway 522, 2.8 mi northeast of Mineral.	3.72	1975-80	10-16-80	*.17
					12-10-80	*1.27
					1-28-81	*1.01
					3-19-81	*1.20
					4-29-81	*1.25
					6-16-81	*.33
					8-25-81	*.03
Contrary Creek a/	North Anna River	Lat 38°03'46", long 77°51'39", Louisa County, 1.1 mi downstream from bridge on State Highway 522, 4.5 mi northeast of Mineral.	6.76	1975-80	10-21-80	*.55
					11-20-80	*1.88
					12-18-80	*1.60
					3-16-81	*2.47
					6- 8-81	*.87
					7- 6-81	21.1
					8-25-81	*.08
Northeast Creek a/	North Anna River	Lat 38°02'37", long 77°41'37", Spotsylvania County, at bridge on State Highway 622, 3.0 mi west of Partlow.	-	-	2-24-81	30.4
North Anna River a/	Pamunkey River	Lat 37°49'32", long 77°25'35", Caroline-Hanover County line, at confluence with Little River, 1.8 mi downstream from bridge on State Highway 30, and 3.0 mi southeast of Doswell.	-	1979-80	10- 7-80	57.6
					10-27-80	98.2
					11-13-80	73.1
					1- 6-81	93.3
					2-20-81	124
					4- 6-81	170
					5-18-81	107
					7- 2-81	97.2
					8-17-81	52.6
South Anna River a/	Pamunkey River	Lat 38°07'25", long 78°12'20", Louisa County, at bridge 0.2 mi west of Gordonsville STP, 1.5 mi southwest of Gordonsville.	-	-	6- 9-81	*.30
Unnamed tributary a/	South Anna River	Lat 38°07'46", long 78°11'42", Louisa County, at bridge 0.5 mi northeast of Gordonsville STP, 0.9 mi south of Gordonsville.	-	-	6- 9-81	*<.03

* Base flow.
< Less than.
a Furnished by Virginia State Water Control Board.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		YORK RIVER BASIN--Continued				
South Anna River a/	Pamunkey River	Lat 38°07'21", long 78°12'10", Louisa County, 0.6 mi upstream from State Highway 660, 1.5 mi southwest of Gordonsville.	-	-	6- 1-81 6- 8-81	0.79 *.60
South Anna River a/	Pamunkey River	Lat 38°07'00", long 78°11'55", Louisa County, at bridge on State Highway 660, 1.8 mi southwest of Gordonsville.	-	-	6- 9-81	*.95
South Anna River a/	Pamunkey River	Lat 38°06'07", long 78°11'40", Louisa County, at Norfield Farm, 0.8 mi upstream from State Highway 603, and 2.1 mi north of Boswells Tavern.	-	-	6- 9-81	*1.18
South Anna River a/	Pamunkey River	Lat 38°05'31", long 78°11'26", Louisa County, at bridge on State Highway 603, 1.5 mi north of Boswells Tavern.	-	1976	6- 1-81 6- 8-81 6-10-81	1.45 *1.17 2.57
South Anna River a/	Pamunkey River	Lat 38°04'21", long 78°10'12", Louisa County, 1.0 mi downstream from bridge on U.S. Highway 15, 0.8 mi east of Boswells Tavern.	-	-	6-10-81	6.77
South Anna River a/	Pamunkey River	Lat 38°03'27", long 78°08'25", Louisa County, at bridge on State Highway 22, 2.7 mi east of Boswells Tavern.	-	-	6- 1-81 6- 8-81 6-10-81	6.46 *6.75 8.73
South Anna River a/	Pamunkey River	Lat 37°47'32", long 77°49'53", Louisa County, at bridge on State Highway 610, 2.9 mi northwest of Dabneys.	-	1979-80	10-10-80 11-10-80 1- 7-81	13.8 35.4 39.7
		BACK RIVER BASIN				
Unnamed tributary	Brick Kiln Creek	Lat 37°06'40", long 76°26'33", York County, at culvert on State Highway 134, 1.0 mi above Big Bethel Reservoir, and 1.0 mi southeast of Tabb.	0.14	1980	11-17-80	0
		JAMES RIVER BASIN				
02031400 North Fork Moormans River b/	Moormans River	Lat 38°11'42", long 78°43'57", Albemarle County, 200 ft above ford on Shenandoah National Park fire road, 0.9 mi above Little Gate Branch, and 3.3 mi west of Browns Cove.	2.60	-	9-21-81	.48
02031410 Unnamed tributary b/	North Fork Moormans River	Lat 38°12'23", long 78°44'52", Albemarle County, 70 ft below Skyline Drive, 1.5 mi from mouth, and 4.6 mi east of Harriston.	.21	-	9-21-81	.018
02031420 Unnamed tributary b/	North Fork Moormans River	Lat 38°11'50", long 78°44'32", Albemarle County, at side of Shenandoah National Park fire road, 0.5 mi from mouth, and 3.8 mi west of Browns Cove.	.70	-	9-21-81	.10
02031430 North Fork Moormans River b/	Moormans River	Lat 38°10'12", long 78°44'30", Albemarle County, at side of Shenandoah National Park fire road, 0.4 mi above Big Branch, and 4.4 mi southwest of Browns Cove.	6.19	-	9-21-81	.94

* Base flow.
a Furnished by Virginia State Water Control Board.
b Effects of acid rain in the Shenandoah National Park.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft³/s)
		JAMES RIVER BASIN--Continued				
02031440 North Fork Moormans River b/	Moormans River	Lat 38°09'23", long 78°44'56", Albemarle County, at ford on Shenandoah National Park fire road, 0.7 mi below Big Branch, and 5.4 mi northwest of White Hall.	9.12	-	9-21-81	1.4
02031500 North Fork Moormans River b/	Moormans River	Lat 38°08'25", long 78°45'05", Albemarle County, 300 ft above State Highway 614, 0.5 mi above confluence with South Fork, and 5.1 mi west of White Hall.	11.4	1944-46, 1952-63*, 1977	8-17-81 9-22-81	.92 1.5
02031800 South Fork Moormans River b/	Moormans River	Lat 38°08'13", long 78°44'59", Albemarle County, 450 ft above Charlottesville Reservoir, 1.7 mi below Turk Branch, and 4.6 mi west of White Hall.	5.56	-	8-17-81 9-22-81	.44 2.3
02032100 Moormans River b/	South Fork Rivanna	Lat 38°07'45", long 78°43'27", Albemarle County, at bridge on State Highway 614, 1.0 mi below Charlottesville Reservoir, and 3.4 mi west of White Hall.	20.8	-	8-17-81 9-22-81	.19 .43
02032110 Doyles River b/	Moormans River	Lat 38°12'28", long 78°40'30", Albemarle County, 200 ft above bridge on State Highway 629, 0.4 mi north of Browns Cove, and 6.2 mi from mouth.	6.44	-	8-17-81 9-22-81	.31 .82
02032310 Unnamed tributary b/	Muddy Run	Lat 38°14'02", long 78°37'08", Albemarle County, at bridge on State Highway 810, 800 ft from mouth, and 1.1 mi west of Boonesville.	2.59	-	8-17-81 9-22-81	.25 .64
02032545 Ivy Creek b/	Lynch River	Lat 38°16'07", long 78°36'45", Greene County, at bridge on State Highway 601, 1.0 mi below Shenandoah National Park boundary, and 2.5 mi north of Boonesville.	6.11	-	8-17-81 9-22-81	.18 .49
02032580 Swift Run b/	North Fork Rivanna	Lat 38°21'24", long 78°32'13", Greene County, 250 ft below culvert on U.S. Highway 33, 2.5 mi east of Swift Run.	.47	-	9-25-81	.008
02032583 Swift Run b/	North Fork Rivanna	Lat 38°20'57", long 78°32'05", Greene County, at side of U.S. Highway 33, 2.8 mi above Bull Yearling Run, and 4.5 mi northeast of Bacon Hollow.	1.41	-	9-25-81	.45
02032586 Swift Run b/	North Fork Rivanna	Lat 38°20'47", long 78°31'32", Greene County, at side of U.S. Highway 33, 2.2 mi above Bull Yearling Run, and 2.2 mi northwest of Lydia.	2.86	-	9-25-81	.84
02032589 Swift Run b/	North Fork Rivanna	Lat 38°20'31", long 78°30'40", Greene County, at side of U.S. Highway 33 on Shenandoah National Park boundary, 1.4 mi northwest of Lydia.	4.80	-	8-18-81 9-24-81	.96 1.1
Unnamed tributary	Angola Creek	Lat 37°22'16", long 78°17'48", Cumberland County, at mouth, 50 ft east of State Highway 664, and 3.9 mi southwest of Angola.	-	-	7- 8-81 9-15-81	.56 .18
Buckskin Creek	West Creek	Lat 37°16'17", long 78°02'17", Amelia County, at bridge on State Highway 640, 1.1 mi above mouth, and 3.4 mi southeast of Jettersville.	-	1953-54	7- 8-81	3.6

* Operated as a continuous-record gaging station.
b Effects of acid rain in the Shenandoah National Park.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		JAMES RIVER BASIN--Continued				
Unnamed tributary	Winterpock Creek	Lat 37°21'14", long 77°43'02", Chesterfield County, at culvert on State Highway 664, 0.1 mi above mouth, and 0.6 mi north of Winterpock.	-	-	6-25-81	0
Unnamed tributary	Winterpock Creek	Lat 37°20'27", long 77°43'31", Chesterfield County, at culvert on State Highway 664, 0.2 mi above mouth, and 0.5 mi southwest of Winterpock.	-	-	6-25-81	0
Unnamed tributary	Winterpock Creek	Lat 37°19'58", long 77°44'14", Chesterfield County, at culvert on State Highway 664, 0.7 mi above mouth, and 1.4 mi southwest of Winterpock.	-	-	6-25-81	0
Unnamed tributary	Pucketts Branch	Lat 37°44'50", long 77°42'30", Amelia County, at culvert on State Highway 708, 0.1 mi above mouth, and 5.8 mi northwest of Church Road.	-	-	6-25-81	0
Unnamed tributary	Pucketts Branch	Lat 37°44'43", long 77°42'00", Amelia County, at culvert on State Highway 708, 0.1 mi above mouth, and 5.3 mi northwest of Church Road.	-	-	6-25-81	0
Great Run	Beaverdam Creek	Lat 37°13'23", long 76°31'16", York County, at culvert on State Highway 637, 1.0 mi southwest of Yorktown, and 1.1 mi above mouth.	1.26	-	11-17-80	0
Shingle Creek	Nansemond River	Lat 36°43'16", long 76°34'02", Suffolk City, at culvert on White Marsh Road, 0.4 mi south of intersection of State Highways 642 and 337, 0.4 mi south of Suffolk, and 3.3 mi above mouth.	-	1979-80	12- 8-80 1-20-81 2-17-81	.84 2.4 2.8
Unnamed tributary	Shingle Creek	Lat 36°40'31", long 76°33'38", Suffolk City, at culvert on White Marsh Road, 2.4 mi south of intersection of State Highways 642 and 337, and 2.4 mi south of Suffolk.	-	1979-80	12- 8-80 1-20-81 2-17-81	0 0 0
Shingle Creek	Nansemond River	Lat 36°43'51", long 76°33'21", Suffolk City, 25 ft upstream from N&W railroad culvert, 0.9 mi east of Suffolk, and 2.1 mi above mouth.	-	1979-80	12- 8-80 1-20-81 2-17-81	1.1 2.2 4.1
Jericho Ditch	Shingle Creek	Lat 36°43'55", long 76°32'51", Suffolk City, at control structure, 0.75 mi north of Williamson Ditch, and 1.5 mi east of Suffolk.	-	-	6- 8-81	.81
Tributary No. 1	Drum Point Creek	Lat 36°50'48", long 76°25'57", Chesapeake City, at culvert on Pughsville Road, 0.1 mi above mouth, and 0.4 mi northeast of Boone.	.29	1980	10-16-80	0
Tributary No. 2	Drum Point Creek	Lat 36°50'13", long 76°25'57", Chesapeake City, at culvert on Gum Road, 0.4 mi above mouth, and 0.4 mi southeast of Boone.	.39	1980	10-16-80	0
Unnamed tributary	Drum Point Creek tributary No. 2	Lat 36°50'08", long 76°25'52", Chesapeake City, at culvert on Gum Road, 0.1 mi above mouth, and 0.5 mi southeast of Boone.	.14	1980	10-16-80	0

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued				
Sterns Creek	Western Branch Elizabeth River	Lat 36°24'23", long 76°51'33", Chesapeake City, at culvert on Taylor Road, 2.0 mi northeast of Boone, and 2.5 mi above mouth.	0.39	-	10-16-80	0
Portsmouth Ditch	Deep Creek	Lat 36°40'33", long 76°24'47", Chesapeake City, 50 ft north of Fivemile Ditch, 4 mi south of junction with Big Entry Ditch, and 6.2 mi southwest of Deep Creek.	-	-	6- 9-81	(c)
Portsmouth Ditch	Deep Creek	Lat 36°43'07", long 76°22'45", Chesapeake City, 10 ft downstream from Big Entry Ditch, 2.5 mi southwest of Deep Creek, and 2.8 mi above mouth.	-	1979-80	2-18-81	.17
Portsmouth Ditch	Deep Creek	Lat 36°45'04", long 76°22'27", Chesapeake City, 0.9 mi west of State Highway 165 at culvert on Martin Johnson Road, 0.9 mi above mouth, and 1.5 mi west of Deep Creek.	-	1979-80	12- 9-80 2-18-81	0 .60
Tributary No. 3	Dismal Swamp Canal	Lat 36°36'02", long 76°23'00", Chesapeake City, at mouth, 1.0 mi south of Wallaceton, 3.6 mi north of Va./N.C. State line, and 10.0 mi south of Deep Creek.	-	1979-80	12- 8-80 2-18-81	0 0
Tributary No. 9	Dismal Swamp Canal	Lat 36°36'18", long 76°22'57", Chesapeake City, at mouth, 3.9 mi north of Va./N.C. State line, at Wallaceton, and 9.7 mi south of Deep Creek.	-	1980	12- 9-80	0
Tributary No. 10	Dismal Swamp Canal	Lat 36°36'37", long 76°22'52", Chesapeake City, at mouth, 4.4 mi north of Va./N.C. State line, at Wallaceton, and 9.3 mi south of Deep Creek.	-	1980	12- 9-80	0
Tributary No. 4	Dismal Swamp Canal	Lat 36°36'50", long 76°22'47", Chesapeake City, at mouth, 4.6 mi north of Va./N.C. State line, at Wallaceton, and 9.0 mi south of Deep Creek.	-	1979-80	12- 9-80	0
Tributary No. 5	Dismal Swamp Canal	Lat 36°36'56", long 76°22'48", Chesapeake City, at mouth, 4.7 mi north of Va./N.C. State line, and 8.5 mi south of Deep Creek.	-	1979-80	12- 9-80 1-21-81 2-18-81	0 (f) 0
Tributary No. 6	Dismal Swamp Canal	Lat 36°37'01", long 76°22'47", Chesapeake City, at mouth, 4.8 mi north of Va./N.C. State line, and 8.4 mi south of Deep Creek.	-	1979-80	12- 9-80 1-21-81 2-18-81	0 (f) 0
Southeast Ditch	Dismal Swamp Canal	Lat 36°39'17", long 76°22'09", Chesapeake City, at mouth, 6.0 mi south of Deep Creek.	-	1980	12- 9-80 2-18-81	0 [g].01
Fivemile Ditch	Dismal Swamp Canal	Lat 36°40'12", long 76°21'55", Chesapeake City, at mouth, 5.0 mi south of Deep Creek.	-	1979-80	12- 9-80 1-21-81	0 0

c Ponded, no apparent flow.
f Complete ice cover, no apparent flow.
g Estimated.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		JAMES RIVER BASIN--Continued				
Tributary No. 7	Dismal Swamp Canal	Lat 36°40'57", long 76°21'42", Chesapeake City, at mouth, 4.1 mi south of Deep Creek.	-	1980	12- 9-80 2-18-81	0 0
Northeast Ditch	Dismal Swamp Canal	Lat 36°41'59", long 76°21'55", Chesapeake City, at mouth, 2.9 mi south of Deep Creek.	-	1979-80	12- 9-80 1-21-81 2-18-81	0 0 0
Big Entry Ditch	Dismal Swamp Canal	Lat 36°43'06", long 76°22'44", Chesapeake City, at Portsmouth Ditch road bridge, 10 ft below Portsmouth Ditch, 2.1 mi above mouth, and 2.5 mi southwest of Deep Creek.	-	1979-80	12- 9-80 1-21-81 2-18-81 6- 9-81	0 (c) (c) 25
Big Entry Ditch	Dismal Swamp Canal	Lat 36°43'11", long 76°21'09", Chesapeake City, 200 ft above mouth, 1.5 mi south of Deep Creek.	-	1979-80	12- 9-80 1-21-81 2-18-81 6- 9-81	(c) (f) (c) (c)
		CURRITUCK SOUND				
Unnamed tributary	Beggars Bridge Creek	Lat 36°40'22", long 76°00'18", Virginia Beach City, at culvert on Gum Bridge Road, 0.3 mi above mouth, and 1.7 mi southeast of Pleasant Ridge.	.23	1980	10-16-80	0
Unnamed tributary	Northwest River tributary No. 5	Lat 36°38'18", long 76°14'56", Virginia Beach City, at culvert on St. Brides Road, 2.4 mi northwest of Hickory.	-	1980	10-16-80	0
Unnamed tributary	Northwest River tributary No. 5	Lat 36°38'13", long 76°14'18", Virginia Beach City, at culvert on St. Brides Road, 1.9 mi northwest of Hickory.	.07	1980	10-16-80	0
		PASQUOTANK RIVER BASIN				
Tributary No. 3	Cypress Swamp	Lat 36°33'35", long 76°36'58", Suffolk City, at culvert on Desert Road, 1.7 mi east of Cypress Chapel.	-	1979-80	12- 8-80 1-20-81 2-17-81	0 0 0
Cypress Swamp	Washington Ditch	Lat 36°37'37", long 76°33'57", Suffolk City, at bridge on Desert Road, 1.5 mi northeast of Cypress Chapel.	29.0	1979-80	12- 8-80 1-20-81 2-17-81	0 0 1.4
Tributary No. 2	Cypress Swamp	Lat 36°38'03", long 76°34'23", Suffolk City, at culvert on Desert Road, 1.3 mi northeast of Cypress Chapel.	-	1979-80	12- 8-80 1-20-81 2-17-81	0 0 0
Tributary No. 1	Cypress Swamp	Lat 36°38'43", long 76°34'05", Suffolk City, at culvert on White Marsh Road, 2.2 mi northeast of Cypress Chapel.	-	1979-80	12- 8-80 1-20-81 2-17-81	0 0 0
Washington Ditch	Lake Drummond	Lat 36°39'18", long 76°33'16", Suffolk City, at bridge on White Marsh Road, 3.0 mi northeast of Cypress Chapel, and 5.7 mi above mouth.	8.36	1979-80	12- 8-80 1-20-81 2-17-81	0 (f) 0
Tributary No. 1	Dismal Swamp	Lat 36°33'18", long 76°36'33", Suffolk City, at culvert on Desert Road, 2.6 mi southeast of Cypress Chapel.	.91	1979-80	12- 8-80 1-20-81 2-17-81	0 0 g.10
Tributary No. 2	Dismal Swamp	Lat 36°36'05", long 76°33'09", Suffolk City, at culvert on Desert Road, 2.4 mi southeast of Cypress Chapel.	-	1979-80	12- 8-80 1-20-81 2-17-81	0 0 (c)

c Ponded, no apparent flow.
f Complete ice cover, no apparent flow.
g Estimated.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		PASQUOTANK RIVER BASIN--Continued				
Moss Swamp	Dismal Swamp	Lat 36°35'02", long 76°32'44", Suffolk City, at culvert on Desert Road, 3.5 mi southeast of Cypress Chapel.	4.46	1979-80	12- 8-80	0
					1-20-81	0
					2-17-81	2.0
Tributary No. 3	Dismal Swamp	Lat 36°34'46", long 76°32'52", Suffolk City, at culvert on Desert Road, 3.6 mi southeast of Cypress Chapel.	.06	1979-80	12- 8-80	0
					1-20-81	0
					2-17-81	0
Tributary No. 4	Dismal Swamp	Lat 36°34'29", long 76°32'55", Suffolk City, at culvert on Desert Road, 3.8 mi southeast of Cypress Chapel.	.13	1979-80	12- 8-80	0
					1-20-81	0
					2-17-81	(c)
Tributary No. 5	Dismal Swamp	Lat 36°34'15", long 76°32'57", Suffolk City, at culvert on Desert Road, 4.1 mi southeast of Cypress Chapel.	1.16	1979-80	12- 8-80	0
					1-20-81	(c)
					2-17-81	(c)
Tributary No. 6	Dismal Swamp	Lat 36°33'58", long 76°33'07", Suffolk City, at culvert on Desert Road, 4.3 mi southeast of Cypress Chapel.	.02	1979-80	12- 8-80	0
					1-20-81	0
					2-17-81	0
Myrtle Ditch	Feeder Ditch	Lat 36°35'39", long 76°25'45", Chesapeake City, 10 ft above mouth on Feeder Ditch, 2.4 mi west of Arbuckle Landing, and 11 mi southwest of Deep Creek.	-	1980	12- 9-80	.64
					6- 9-81	17
Feeder Ditch	Dismal Swamp Canal	Lat 36°35'33", long 76°23'19", Chesapeake City, 500 ft above mouth on Dismal Swamp Canal, 10.5 mi south of Deep Creek.	-	1979-80	12- 9-80	(c)
					1-21-81	(f)
					2-18-81	(c)
Tributary No. 11	Dismal Swamp Canal	Lat 36°35'15", long 76°23'11", Chesapeake City, at mouth, 10.9 mi south of Deep Creek.	-	-	12- 9-80	0
					2-18-81	0
South Martha Washington Ditch	Dismal Swamp Canal	Lat 36°32'46", long 76°22'37", Camden County, N. C., 500 ft above mouth on Dismal Swamp Canal, 6.9 mi north of South Mills, N. C.	-	1979-80	12- 9-80	0
					1-21-81	(f)
					2-18-81	3.6
					6- 9-81	g.6
Tributary No. 7	Dismal Swamp	Lat 36°31'59", long 76°33'12", Gates County, N. C., at culvert on State Highway 1332, 1.5 mi east of Corapeake, N. C.	-	1979-80	12- 8-80	0
					1-20-81	0
					2-17-81	0
02043750 Cross Canal	Dismal Swamp Canal	Lat 36°30'35", long 76°33'10", Gates County, N. C., on right bank 300 ft downstream from State Highway 1332, 1.0 mi east of Holly Grove, N. C.	-	1979-80	12- 8-80	0
					1-20-81	.17
					2-17-81	10
Folly Swamp	Dismal Swamp	Lat 36°29'19", long 76°34'32", Gates County, N. C., at culvert on State Highway 32, 0.75 mi northeast of Savage, N. C.	-	1979-80	12- 8-80	0
					1-20-81	0
					2-17-81	g.01
Goose Creek	Dismal Swamp	Lat 36°27'49", long 76°33'32", Gates County, N. C., at culvert on State Highway 1002, 1.8 mi southeast of Savage, N. C.	-	1979-80	12- 8-80	0
					1-20-81	0
					2-17-81	(c)
Tributary No. 8	Dismal Swamp	Lat 36°26'33", long 76°32'42", Gates County, N. C., at culvert on U.S. Highway 158, at Acorn Hill, and 3.5 mi east of Sunburg, N. C.	-	1979-80	12- 8-80	0
					1-20-81	0
					2-17-81	(c)
Cross Canal	Dismal Swamp Canal	Lat 36°30'54", long 76°21'38", Camden County, N. C., at mouth, 5.1 mi north of South Mills, N. C.	-	1979-80	12- 9-80	.03
					1-21-81	(f)
					2-18-81	0

c Ponded, no apparent flow.
f Complete ice cover, no apparent flow.
g Estimated.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		PASQUOTANK RIVER BASIN--Continued				
Tributary No. 2	Dismal Swamp Canal	Lat 36°29'15", long 76°20'50", Camden County, N. C., at mouth, 3.1 mi north of South Mills, N. C.	-	1979-80	12- 9-80 1-21-81	0 (f)
Tributary No. 1	Dismal Swamp Canal	Lat 36°28'50", long 76°20'38", Camden County, N. C., at mouth, 2.6 mi north of South Mills, N. C.	-	1979-80	12- 9-80 1-21-81 2-18-81	.13 (f) g.01
Tributary No. 8	Dismal Swamp Canal	Lat 36°27'56", long 76°20'12", Camden County, N. C., at mouth, 1.4 mi north of South Mills, N. C.	-	-	12- 9-80 2-18-81	0 0
Tributary No. 2	Pasquotank River	Lat 36°26'03", long 76°20'21", Camden County, N. C., at bridge on U.S. Highway 17, 1.0 mi southwest of South Mills, N. C., 1.5 mi above mouth, and 1.8 mi above Newland Drainage Canal.	-	1979-80	12- 8-80 1-20-81 2-17-81	(c) (c) (c)
Tributary No. 19	Newland Drainage Canal	Lat 36°25'04", long 76°24'22", Pasquotank County, N. C., at culvert on U.S. Highway 158, 4.7 mi southwest of South Mills, N. C.	-	-	12- 8-80 1-20-81 2-17-81	0 (c) (c)
Tributary No. 21	Newland Drainage Canal	Lat 36°24'59", long 76°23'30", Pasquotank County, N. C., at culvert on U.S. Highway 158, 4.1 mi southwest of South Mills, N. C.	-	-	12- 8-80 1-20-81 2-17-81	0 0 0
Tributary No. 22	Newland Drainage Canal	Lat 36°24'55", long 76°23'17", Pasquotank County, N. C., at culvert on U.S. Highway 158, 3.9 mi southwest of South Mills, N. C.	-	-	12- 8-80 1-20-81 2-17-81	0 0 0
Tributary No. 24	Newland Drainage Canal	Lat 36°25'15", long 76°22'22", Pasquotank County, N. C., at bridge on U.S. Highway 158, 3.0 mi southwest of South Mills, N. C.	-	-	12- 8-80 1-20-81 2-17-81	0 (c) (c)
Tributary No. 1	Pasquotank River	Lat 36°25'45", long 76°20'28", Camden County, N. C., at bridge on U.S. Highway 17, 0.4 mi above mouth, 0.9 mi below Newland Drainage Canal, and 1.3 mi southwest of South Mills, N. C.	-	1979-80	12- 8-80 1-20-81 2-17-81	(c) (c) (c)
02043857 Pasquotank River	Albemarle Sound	Lat 36°25'18", long 76°20'50", Camden County, N. C., at right downstream side of bridge on U.S. Highway 17, 1.9 mi upstream from Dismal Swamp Canal, and 2.0 mi southwest of South Mills, N. C.	-	1979-80	12- 8-80 1-20-81 2-17-81 6- 9-81	(c) (c) 47 (c)
		CHOWAN RIVER BASIN				
Unnamed tributary	Nottoway River	Lat 36°56'05", long 77°22'08", Sussex County, at culvert on State Highway 40, 0.9 mi above mouth, and 1.5 mi east of Stony Creek.	1.45	1980	10-17-80	0
Unnamed tributary	Mush Pond Swamp	Lat 36°56'02", long 77°21'54", Sussex County, at culvert on State Highway 40, 1.7 mi east of Stony Creek.	.21	1980	10-17-80	0
Cabin Point Swamp	Nottoway River	Lat 36°55'35", long 77°21'07", Sussex County, at culvert on State Highway 641, 2.2 mi east of Stony Creek.	1.52	1980	10-17-80	0

c Ponded, no apparent flow.
f Complete ice cover, no apparent flow.
g Estimated.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		CHOWAN RIVER BASIN--Continued				
Unnamed tributary	Hunting Quarter Swamp	Lat 36°54'00", long 77°20'15", Sussex County, at culvert on State Highway 641, 0.8 mi above mouth, and 3.4 mi southwest of Sussex.	0.20	1980	10-17-80	0
Hunting Quarter Swamp	Nottoway River	Lat 36°53'22", long 77°19'51", Sussex County, at culvert on State Highway 641, 3.4 mi southwest of Sussex.	5.29	1980	10-17-80	0
Unnamed tributary	Hunting Quarter Swamp	Lat 36°54'00", long 77°29'42", Sussex County, at culvert on State Highway 735, 0.4 mi above mouth, and 1.1 mi south of Sussex.	.18	1980	10-17-80	0
Thweatt Branch	Hunting Quarter Swamp	Lat 36°54'26", long 77°29'33", Sussex County, at culvert on State Highway 735, 0.5 mi south of Sussex, and 1.0 mi above mouth.	2.72	1980	10-17-80	0
Unnamed tributary	Kettlestick Branch	Lat 36°49'28", long 77°38'45", Greensville County, at culvert, 0.6 mi above mouth, and 3.4 mi west of Purdy.	-	-	6-25-81	0
Three Creek	Nottoway River	Lat 36°42'58", long 77°27'05", Sussex and Greensville County line, at bridge on State Highway 611, 4.0 mi west of Adams Grove.	94.5	-	10-17-80	0
Browns Branch	Three Creek	Lat 36°42'38", long 77°23'33", Southampton County, at culvert on State Highway 615, 1.2 mi north of Adams Grove.	5.92	1980	6-17-81	(c)
Chatman Branch	Three Creek	Lat 36°43'30", long 77°22'38", Southampton County, at culvert on State Highway 612, 1.5 mi above mouth, and 2.2 mi north of Adams Grove.	4.05	1980	10-17-80 6-17-81	0 0
Unnamed tributary	Three Creek	Lat 36°43'52", long 77°20'28", Southampton County, at culvert on State Highway 612, 2.2 mi northwest of Drewryville.	.59	1980	10-17-80	0
Unnamed tributary	Three Creek	Lat 36°43'53", long 77°20'14", Southampton County, at culvert on State Highway 612, 2.0 mi northwest of Drewryville.	.15	1980	10-17-80	0
Smith Swamp	Three Creek	Lat 36°43'44", long 77°19'08", Southampton County, at culvert on State Highway 659, 1.1 mi northwest of Drewryville.	2.15	1980	10-17-80 6-17-81	0 0
Three Creek	Nottoway River	Lat 36°46'32", long 77°11'08", Southampton County, at bridge on State Highway 609, 3.1 mi above mouth, and 3.6 mi west of Sebrell.	215	1942, 1944, 1952-54, 1977, 1980	10-17-80	0
Unnamed tributary	Assamoosick Swamp	Lat 36°57'28", long 77°09'54", Sussex County, at culvert on State Highway 40, 0.9 mi northeast of Homeville.	.86	1980	10-17-80	0
Indian Branch	Assamoosick Swamp	Lat 36°46'11", long 77°05'43", Southampton County, at culvert on State Highway 35, 0.3 mi above mouth, and 1.8 mi southeast of Sebrell.	12.9	1942, 1980	10-17-80	0

c Ponded, no apparent flow.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		CHOWAN RIVER BASIN--Continued				
Tributary No. 1	Nottoway Swamp	Lat 36°43'02", long 77°00'12", Southampton County, at bridge on State Highway 650, 0.7 mi above mouth, and 0.8 mi north of Story.	1.56	1980	10-17-80 6-17-81	0 0
Unnamed tributary	Flag Run	Lat 36°42'57", long 77°03'28", Southampton County, at culvert on State Highway 611, at Courtland.	.20	-	2- 3-81	0
Unnamed tributary	Darden Mill Run	Lat 36°33'50", long 77°04'12", Southampton County, at culvert on State Highway 678, 0.5 mi above mouth, and 2.8 mi southwest of Sunbeam.	2.95	-	10-17-80 6-17-81	0 0
Unnamed tributary	Darden Mill Run	Lat 36°33'24", long 77°03'30", Southampton County, at culvert on State Highway 678, 0.8 mi above mouth, and 2.5 mi southwest of Sunbeam.	.84	-	10-17-80	0
Unnamed tributary	Mill Creek	Lat 36°34'28", long 77°02'23", Southampton County, at bridge on State Highway 683, 0.2 mi above mouth, and 1.1 mi southwest of Sunbeam.	8.56	1980	10-17-80	0
Unnamed tributary	Blackwater Swamp	Lat 37°07'43", long 77°13'08", Prince George County, at culvert on State Highway 613, at Disputanta.	.57	1980	10-15-80	0
Cypress Swamp	Blackwater River	Lat 37°06'37", long 76°54'48", Surry County, at bridge on State Highway 630, 3.0 mi northwest of Elberon.	25.2	1980	10-15-80	0
Cypress Swamp	Blackwater River	Lat 37°05'21", long 76°55'05", Surry County, at bridge on State Highway 616, 0.5 mi above Elwood Swamp, and 2.1 mi northwest of Elberon.	33.5	1980	6-15-81	0
Elwood Swamp	Cypress Swamp	Lat 37°05'28", long 76°55'40", Surry County, at culvert on State Highway 616, 0.9 mi above mouth, and 2.6 mi northwest of Elberon.	1.24	1980	10-15-80	0
Johnchecohunk Swamp	Cypress Swamp	Lat 37°05'08", long 76°56'57", Surry County, at bridge on State Highway 616, 1.9 mi above mouth, and 3.0 mi north of Dendron.	10.8	-	10-15-80	0
Terrapin Swamp	Blackwater River	Lat 36°58'02", long 76°51'09", Southampton County, at bridge on State Highway 616, 0.4 mi above mouth, and 4.7 mi northwest of Raynor.	16.6	-	10-15-80	0
Hickaneck Swamp	Blackwater River	Lat 36°56'40", long 76°53'02", Southampton County, at bridge on State Highway 616, 2.2 mi above mouth, and 2.4 mi north of Ivor.	3.39	-	10-15-80	0
Mill Swamp	Rattlesnake Swamp	Lat 36°59'22", long 76°48'35", Isle of Wight County, at culvert on State Highway 623, 1.2 mi southwest of Pons, and 2.9 mi above mouth.	31.9	1980	10-15-80 6-16-81	0 0
Unnamed tributary	Mill Swamp	Lat 36°58'51", long 76°48'40", Isle of Wight County, at culvert on State Highway 637, 0.3 mi above mouth, and 2.0 mi southwest of Pons.	.85	1980	10-15-80	0

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi^2)	Measured previously (water years)	Measurements	
					Date	Discharge (ft^3/s)
		CHOWAN RIVER BASIN--Continued				
Timber Swamp	Mill Swamp	Lat 36°57'58", long 76°48'25", Isle of Wight County, at culvert on State Highway 637, 1.2 mi above mouth, and 1.8 mi northwest of Raynor.	0.67	1980	10-15-80 6-16-81	0 0
Seacock Swamp	Blackwater River	Lat 36°51'32", long 76°55'18", Southampton County, at bridge on State Highway 614, 0.7 mi above Round Hill Swamp, and 3.1 mi east of Berlin.	63.8	1980	10-17-80	0
Indigo Branch	Round Hill Swamp	Lat 36°50'48", long 77°01'34", Southampton County, at culvert on State Highway 633, 0.7 mi above mouth, and 1.5 mi southeast of Dory.	3.89	1980	10-17-80	0
Horsepen Branch	Round Hill Swamp	Lat 36°51'14", long 77°00'59", Southampton County, at bridge on State Highway 626, 0.15 mi above mouth, and 1.8 mi east of Dory.	4.05	1980	10-17-80	0
Unnamed tributary	Round Hill Swamp	Lat 36°51'18", long 77°00'35", Southampton County, at culvert on State Highway 626, 0.5 mi above mouth, and 2.1 mi east of Dory.	.27	1980	10-17-80	0
Unnamed tributary	Round Hill Swamp	Lat 36°51'18", long 77°00'06", Southampton County, at culvert on State Highway 626, 0.6 mi above mouth, and 1.3 mi west of Berlin.	.78	1980	10-17-80	0
Round Hill Swamp	Seacock Swamp	Lat 36°51'16", long 76°58'09", Southampton County, at bridge on State Highway 626, at Berlin.	18.9	1980	10-17-80	0
Unnamed tributary	Round Hill Swamp	Lat 36°49'51", long 76°56'57", Southampton County, at culvert on State Highway 626, 2.1 mi above mouth, and 2.5 mi southeast of Berlin.	.66	-	10-17-80	0
Unnamed tributary	Round Hill Swamp	Lat 36°50'48", long 76°57'37", Southampton County, at culvert on State Highway 614, 0.7 mi above mouth, and 1.2 mi southeast of Berlin.	1.74	1980	10-17-80	0
Unnamed tributary	Round Hill Swamp	Lat 36°50'55", long 76°57'08", Southampton County, at culvert on State Highway 614, 0.7 mi above mouth, and 1.6 mi southeast of Berlin.	.20	-	10-17-80	0
Unnamed tributary	Seacock Swamp	Lat 36°51'04", long 76°54'03", Southampton County, at culvert on State Highway 600, 1.2 mi above mouth, and 4.5 mi east of Berlin.	2.15	-	10-17-80	0
Unnamed tributary	Seacock Swamp tributary	Lat 36°50'39", long 76°53'24", Southampton County, at culvert on State Highway 600, 0.5 mi above mouth, and 5.2 mi east of Berlin.	1.10	-	10-17-80	0
Seacock Swamp	Blackwater River	Lat 36°49'57", long 76°54'17", Southampton County, at bridge on State Highway 623, 4.5 mi southeast of Berlin.	97.1	1980	10-17-80	0
Unnamed tributary	Seacock Swamp	Lat 36°50'05", long 76°52'46", Southampton County, at culvert on State Highway 600, 0.3 mi above mouth, and 5.7 mi southeast of Berlin.	.56	1980	10-17-80	0

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		CHOWAN RIVER BASIN--Continued				
Unnamed tributary	Cattail Swamp	Lat 36°47'08", long 76°54'27", Southampton County, at culvert on State Highway 635, 0.1 mi above mouth, and 1.3 mi north of Burdette.	0.05	-	10-17-80	0
Unnamed tributary	Cattail Swamp	Lat 36°46'04", long 76°55'32", Southampton County, at culvert on State Highway 635, 0.7 mi above mouth, and 1.5 mi west of Burdette.	1.07	-	10-17-80	0
Unnamed tributary	Cattail Swamp	Lat 36°45'12", long 76°55'55", Southampton County, at culvert on State Highway 635, 1.1 mi above mouth, and 2.1 mi southwest of Burdette.	.24	-	10-17-80	0
Tributary No. 2	Blackwater River	Lat 36°36'33", long 76°55'52", Southampton County, at bridge on U.S. Highway 258, 4.4 mi north of Riverdale.	.44	-	10-16-80	0
Tributary No. 3	Blackwater River	Lat 36°34'46", long 76°56'23", Southampton County, at bridge on U.S. Highway 258, 2.3 mi north of Riverdale.	1.58	1980	10-16-80	0
Quaker Swamp	Jones Swamp	Lat 36°42'29", long 76°44'32", Suffolk City, at culvert on State Highway 610, 1.2 mi south of Buckhorn.	.61	1980	10-16-80 6-18-81 9-21-81	0 0 (c)
Tributary No. 1	Quaker Swamp	Lat 36°42'18", long 76°43'19", Suffolk City, at culvert on State Highway 647, 0.4 mi above mouth, and 1.2 mi northwest of Lummis.	1.42	1980	10-16-80 9-21-81	0 (c)
Unnamed tributary	Somerton Creek	Lat 36°34'23", long 76°45'03", Suffolk City, at bridge on State Highway 643, 0.2 mi above mouth, and 0.3 mi north of Somerton.	3.95	-	10-16-80	0
Somerton Creek	Chowan River	Lat 36°34'37", long 76°45'58", Suffolk City, at bridge on State Highway 660, 1.0 mi northeast of Somerton.	46.5	-	10-16-80	0
March Swamp	Somerton Creek	Lat 36°34'21", long 76°51'23", Suffolk City, at culvert on State Highway 667, 1.7 mi above mouth, and 2.0 mi southwest of Cleopus.	7.92	1980	10-16-80	0
Unnamed tributary	Somerton Creek	Lat 36°33'14", long 76°51'40", Suffolk City, at bridge on State Highway 615, 0.1 mi above mouth, and 3.2 mi southwest of Cleopus.	.56	-	10-16-80	0
		ROANOKE RIVER BASIN				
Roanoke River a/	Albemarle Sound	Lat 37°07'10", long 79°19'12", Campbell-Pittsylvania County line, at bridge on U.S. Highway 29 Bypass, 1.8 mi west of Altavista.	-	-	2-13-81 3-25-81 4-17-81 6-23-81	185 200 175 120
Little Otter River a/	Big Otter River	Lat 37°20'00", long 79°27'53", Bedford County, at bridge on State Highway 718, 1.5 mi east of Bedford city limits.	-	1980	6-23-81 6-24-81	*6.04 *5.75

* Base flow.
a Furnished by Virginia State Water Control Board.
c Ponded, no apparent flow.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		ROANOKE RIVER BASIN--Continued				
Johns Creek a/	Little Otter River	Lat 37°19'43", long 79°27'50", Bedford County, at confluence with Little Otter River, 1.7 mi east of Bedford city limits.	-	1980	6-24-81	*1.01
Little Otter River a/	Big Otter River	Lat 37°19'40", long 79°27'47", Bedford County, 0.4 mi downstream from bridge on State Highway 718, 1.7 mi east of Bedford city limits.	-	1980	6-24-81	*8.51
Little Otter River a/	Big Otter River	Lat 37°19'07", long 79°27'47", Bedford County, 1.7 mi downstream from bridge on State Highway 718, 2.0 mi east of Bedford city limits.	-	1980	6-24-81	*9.02
Little Otter River a/	Big Otter River	Lat 37°19'05", long 79°26'40", Bedford County, at bridge on U.S. Highway 460, 2.3 mi south of Lowry.	-	1980	6-24-81	*9.89
Poorhouse Creek a/	Little Otter River	Lat 37°17'53", long 79°27'25", Bedford County, at confluence with Little Otter River, 0.4 mi upstream from bridge on State Highway 784, and 2.8 mi north of Otter Hill.	-	1980	6-24-81	*.71
Little Otter River a/	Big Otter River	Lat 37°17'51", long 79°27'22", Bedford County, 0.4 mi upstream from bridge on State Highway 784, 2.8 mi north of Otter Hill.	-	1980	6-24-81	*10.2
Little Otter River a/	Big Otter River	Lat 37°17'36", long 79°27'23", Bedford County, at bridge on State Highway 784, 2.5 mi north of Otter Hill.	-	1980	6-23-81 6-24-81 6-25-81	*11.9 *11.5 *11.0
Roanoke River a/	Albemarle Sound	Lat 37°07'10", long 79°14'34", Campbell-Pittsylvania County line, at bridge on State Highway 640, 1.0 mi below confluence with Big Otter River, and 2.0 mi east of Altavista.	-	-	2-13-81 3-25-81 4-17-81 6-23-81	475 418 443 252
Falling River	Roanoke River	Lat 37°16'55", long 78°54'13", Appomattox County, at bridge on State Highway 679, 100 ft upstream from Reddy Creek, and 2.3 mi north of Spring Mills.	-	1953, 1977	8-20-81	4.3
Right Hand Fork	Big Cub Creek	Lat 37°16'12", long 78°49'14", Appomattox County, at culvert on State Highway 727, 2.0 mi above mouth, and 5.2 mi south of Appomattox.	2.08	1968-71	9-21-81	.83
Twittys Creek a/	Roanoke Creek	Lat 36°59'55", long 78°35'25", Charlotte County, 0.8 mi above bridge on State Highway 47, 0.8 mi northeast of Drakes Branch.	-	-	8-27-81	*.27
Twittys Creek a/	Roanoke Creek	Lat 36°59'51", long 78°35'40", Charlotte County, 0.5 mi above bridge on State Highway 47, 0.5 mi northeast of Drakes Branch.	-	-	8-27-81	*.40
Twittys Creek a/	Roanoke Creek	Lat 36°59'25", long 78°36'12", Charlotte County, 0.2 mi below bridge on State Highway 47, 0.2 mi south of Drakes Branch.	-	-	8-29-81	*.30

* Base flow.
a Furnished by Virginia State Water Control.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements Date	Measurements Discharge (ft³/s)
		ROANOKE RIVER BASIN--Continued				
Twittys Creek a/	Roanoke Creek	Lat 36°59'21", long 78°36'14", Charlotte County, 0.3 mi below bridge on State Highway 47, 0.3 mi south of Drakes Branch.	-	-	8-29-81	*0.38
Twittys Creek a/	Roanoke Creek	Lat 36°58'33", long 78°36'52", Charlotte County, at ford, 1.4 mi southwest of Drakes Branch, and 1.5 mi below bridge on State Highway 47.	-	-	8-21-81 8-28-81	*.81 *.59
Twittys Creek a/	Roanoke Creek	Lat 36°57'35", long 78°37'55", Charlotte County, at bridge on State Highway 642, 2.7 mi northeast of Saxe.	-	-	8-29-81	*.53
Twittys Creek a/	Roanoke Creek	Lat 36°56'42", long 78°38'33", Charlotte County, 1.2 mi below bridge on State Highway 642, 1.6 mi northeast of Saxe.	-	-	8-31-81	*.70
Smith River a/	Dan River	Lat 36°47'17", long 80°00'33", Henry County, at bridge on State Highway 603, at Philpott, and 3.2 mi below Philpott Dam.	-	-	6-13-81	48.6
Town Creek a/	Smith River	Lat 36°47'25", long 80°00'20", Henry County, at bridge on State Highway 674, at Philpott, and 50 ft east of intersection with State Highway 603.	38.0	-	6-13-81	*15.3
Smith River a/	Dan River	Lat 36°46'12", long 80°00'04", Henry County, at bridge on State Highway 666 at north edge of North Bassett, 1.0 mi northwest of Bassett, and 3.0 mi below Town Creek.	259	1939-80‡	6-14-81	66.9
Smith River a/	Dan River	Lat 36°45'58", long 80°00'03", Henry County, at bridge on State Highway 666 at North Bassett, 1.0 mi northwest of Bassett, and 3.7 mi below Town Creek.	-	-	6-14-81	73.0
Smith River a/	Dan River	Lat 36°44'13", long 79°57'30", Henry County, at bridge on State Highway Alt. 57, at Stanleytown.	-	-	6-14-81	73.5
Smith River a/	Dan River	Lat 36°43'18", long 79°56'27", Henry County, at bridge on U.S. Highway 220 Bypass, 200 ft above Reed Creek, and 1.6 mi north of Fieldale.	-	-	6-14-81	75.6
Reed Creek a/	Smith River	Lat 36°43'17", long 79°56'23", Henry County, at confluence with Smith River, 1.6 mi north of Fieldale.	29.8	-	6-14-81	*9.58
Smith River a/	Dan River	Lat 36°42'04", long 79°56'00", Henry County, at bridge on State Highway 701, at Fieldale.	-	-	6-12-81 6-15-81 6-15-81 6-16-81 7-29-81	96.1 89.3 672 287 1,020
Smith River a/	Dan River	Lat 36°41'07", long 79°54'20", Henry County, at WHEE Radio Tower, at Martinsville City limits, and 4.5 mi above Martinsville power plant dam.	-	-	6-15-81	98.4

* Base flow.
‡ Operated as a continuous-record gaging station.
a Furnished by Virginia State Water Control Board.

Discharge measurements made at special study and miscellaneous sites during water year 1981--Continued

Stream	Tributary to	Location	Drainage area (mi²)	Measured previously (water years)	Measurements	
					Date	Discharge (ft³/s)
		KANAWHA RIVER BASIN				
Wolf Creek a/	New River	Lat 37°14'07", long 81°05'50", Bland County, 300 ft above bridge on northbound Interstate Highway 77, 0.7 mi southeast of Rocky Gap.	-	-	2-18-81	157

a Furnished by Virginia State Water Control Board.

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

Samples are collected at partial-record, special study, and miscellaneous sites to give better areal coverage. The results of these samples are given herein.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH (UNITS)	PH LAB (UNITS)	TEMPER-ATURE (DEG C)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
POTOMAC RIVER BASIN								
01626900 - SAWMILL RUN NR DOOMS, VA (LAT 38 05 46 LONG 078 48 38)								
AUG , 1981								
19...	1130	.21	33	6.4	6.3	16.5	1.5	1.0
SEP								
22...	1330	1.4	26	6.1	6.6	17.0	1.3	.9
01627100 - MEADOW RUN NR CRIMORA, VA (LAT 38 09 29 LONG 078 48 38)								
AUG , 1981								
19...	1015	.29	18	5.9	5.8	15.5	.3	.4
SEP								
22...	1430	.09	16	5.4	5.8	17.0	.3	.4
01627400 - PAINE RUN NR HARRISTON, VA. (LAT 38 11 54 LONG 078 47 33)								
SEP , 1981								
23...	1005	.34	22	5.8	6.2	14.0	.4	.6
01628050 - MADI[illegible]ON RUN AB WHITE OAK RUN NR GROTTOES, VA (LAT 38 15 05 LONG 078 44 50)								
AUG , 1981								
18...	1600	.05	31	6.8	6.3	17.5	1.0	1.1
SEP								
23...	1115	.08	29	6.0	6.4	14.0	1.1	1.1
01628080 - MADISON RUN NEAR GROTTOES VA (LAT 38 15 24 LONG 078 46 06)								
AUG , 1981								
18...	1530	.16	23	7.0	6.8	17.5	.8	.7
SEP								
23...	1045	.38	23	6.3	6.8	13.5	.7	.8
01628700 - TWOMILE RUN NR MCGAHEYSVILLE, VA (LAT 38 20 04 LONG 078 40 20)								
SEP , 1981								
23...	0825	.17	20	5.7	6.1	13.5	.4	.5
01628900 - HAWKSBILL CK TRIB NR SWIFT RUN, VA (LAT 38 20 47 LONG 078 34 35)								
AUG , 1981								
18...	1130	.13	52	7.6	7.5	16.0	6.0	1.9
SEP								
23...	1420	.17	58	6.9	7.4	14.0	6.1	1.9
01628910 - WEST SWIFT RUN AT SWIFT RUN, VA. (LAT 38 21 55 LONG 078 34 47)								
AUG , 1981								
18...	1045	.12	48	7.5	7.3	14.5	3.4	1.8
SEP								
23...	1345	.06	51	6.9	7.3	14.0	3.8	2.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
POTOMAC RIVER BASIN--CONTINUED								
01626900 - SAWMILL RUN NR DOOMS, VA (LAT 38 05 46 LONG 078 48 38)								
AUG , 1981								
19...	1.1	1.2	7.8	3.4	.8	7.6	.02	<.010
SEP								
22...	1.1	.8	5.4	4.6	1.0	8.2	.01	<.010
01627100 - MEADOW RUN NR CRIMORA, VA (LAT 38 09 29 LONG 078 48 38)								
AUG , 1981								
19...	.5	1.0	.50	3.5	.8	5.8	.05	<.010
SEP								
22...	.5	.8	.40	3.4	.8	6.0	.03	<.010
01627400 - PAINE RUN NR HARRISTON, VA. (LAT 38 11 54 LONG 078 47 33)								
SEP , 1981								
23...	.6	1.5	1.0	5.2	.9	5.5	.02	<.010
01628050 - MADISON RUN AB WHITE OAK RUN NR GROTTOES, VA (LAT 38 15 05 LONG 078 44 50)								
AUG , 1981								
18...	1.4	1.1	7.2	3.5	.9	8.7	.03	<.010
SEP								
23...	1.1	.9	7.8	3.6	.8	8.0	.03	<.010
01628080 - MADISON RUN NEAR GROTTOES VA (LAT 38 15 24 LONG 078 46 06)								
AUG , 1981								
18...	1.0	1.7	3.4	4.2	.9	6.5	.02	<.010
SEP								
23...	.7	1.2	3.9	4.2	.9	6.2	.02	<.010
01628700 - TWOMILE RUN NR MCGAHEYSVILLE, VA (LAT 38 20 04 LONG 078 40 20)								
SEP , 1981								
23...	.7	1.0	1.3	4.2	.7	6.2	.04	<.010
01628900 - HAWKSBILL CK TRIB NR SWIFT RUN, VA (LAT 38 20 47 LONG 078 34 35)								
AUG , 1981								
18...	3.0	.2	25	3.9	.8	16	.08	<.010
SEP								
23...	3.1	.2	26	3.8	1.0	14	.10	<.010
01628910 - WEST SWIFT RUN AT SWIFT RUN, VA. (LAT 38 21 55 LONG 078 34 47)								
AUG , 1981								
18...	2.6	.3	19	2.3	1.2	17	.21	<.010
SEP								
23...	3.0	.5	21	1.8	1.6	17	.16	<.010

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

POTOMAC RIVER BASIN--CONTINUED

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH (UNITS)	PH LAB (UNITS)	TEMPER-ATURE (DEG C)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
01629120 - E BR NAKED CREEK NEAR JOLLETT, VA (LAT 38 28 07 LONG 078 29 50)								
AUG , 1981								
11...	1300	4.2	32	7.3	7.1	19.0	2.0	1.1
SEP								
23...	1615	.56	32	6.6	7.1	14.5	2.1	1.2
01629130 - BIG CREEK NEAR JOLLETT, VA (LAT 38 27 37 LONG 078 29 35)								
AUG , 1981								
11...	1430	1.1	47	7.8	7.4	19.0	3.8	1.7
SEP								
23...	1550	.20	68	7.3	7.8	14.5	7.9	2.8
01629150 - S BR NAKED CK BL BIG UGLY BR NR FURNACE, VA (LAT 38 25 34 LONG 078 32 51)								
AUG , 1981								
11...	1100	1.3	47	7.3	7.3	20.0	3.3	1.7
SEP								
23...	1510	.36	37	6.9	7.4	15.5	3.0	1.5
01629920 - LITTLE HAWKSBILL CK TRIB NR IDA, VA. (LAT 38 33 23 LONG 078 25 55)								
AUG , 1981								
21...	1330	.07	28	6.4	6.8	15.5	1.9	.6
SEP								
21...	1200	.09	29	6.8	6.9	14.5	2.1	.7
01629950 - EAST HAWKSBILL CREEK NEAR IDA, VA (LAT 38 34 53 LONG 078 24 52)								
AUG , 1981								
21...	1230	.24	35	6.5	6.5	15.0	2.5	.8
SEP								
21...	1330	.10	36	6.6	6.5	14.5	2.6	.8
01630100 - SOUTH FORK DRY RUN NR FAIRVIEW, VA (LAT 38 37 37 LONG 078 23 23)								
AUG , 1981								
10...	1810	.18	53	7.2	7.0	19.5	3.9	1.3
SEP								
21...	1500	.02	40	6.3	6.3	16.0	3.1	1.1
01630200 - N FK DRY RUN NR THORNTON GAP, VA (LAT 38 38 41 LONG 078 22 09)								
AUG , 1981								
10...	1600	.42	--	7.3	7.0	24.0	2.2	.9
SEP								
21...	1600	.11	36	7.4	7.3	18.0	2.4	.9
01630542 - PASS RUN NR THORNTON GAP, VA (LAT 38 39 05 LONG 078 21 14)								
AUG , 1981								
10...	1500	.47	86	7.4	7.4	19.5	6.1	2.8
SEP								
21...	1700	.29	79	7.4	7.4	15.5	6.8	3.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
POTOMAC RIVER BASIN--CONTINUED								
01629120 - E BR NAKED CREEK NEAR JOLLETT, VA (LAT 38 28 07 LONG 078 29 50)								
AUG , 1981 11...	1.5	.3	9.3	3.2	.7	10	.35	<.010
SEP 23...	1.5	.3	11	1.8	.6	10	.28	<.010
01629130 - BIG CREEK NEAR JOLLETT, VA (LAT 38 27 37 LONG 078 29 35)								
AUG , 1981 11...	1.5	.3	16	3.9	.9	11	.20	<.010
SEP 23...	1.6	.3	32	2.4	.9	9.9	.21	<.010
01629150 - S BR NAKED CK BL BIG UGLY BR NR FURNACE, VA (LAT 38 25 34 LONG 078 32 51)								
AUG , 1981 11...	1.7	.8	16	4.4	1.1	9.1	.01	<.010
SEP 23...	1.5	.7	14	3.6	1.2	9.0	.02	<.010
01629920 - LITTLE HAWKSBILL CK TRIB NR IDA, VA. (LAT 38 33 23 LONG 078 25 55)								
AUG , 1981 21...	1.9	.2	6.9	3.7	.9	12	.20	<.010
SEP 21...	1.9	.2	8.3	2.9	.8	14	.21	<.010
01629950 - EAST HAWKSBILL CREEK NEAR IDA, VA (LAT 38 34 53 LONG 078 24 52)								
AUG , 1981 21...	1.8	.3	8.2	4.5	1.0	12	.16	<.010
SEP 21...	1.7	.6	9.6	3.8	1.1	11	.17	<.010
01630100 - SOUTH FORK DRY RUN NR FAIRVIEW, VA (LAT 38 37 37 LONG 078 23 23)								
AUG , 1981 10...	2.2	1.4	14	6.1	1.3	12	.24	.010
SEP 21...	2.1	.4	11	5.0	1.2	13	.15	<.010
01630200 - N FK DRY RUN NR THORNTON GAP, VA (LAT 38 38 41 LONG 078 22 09)								
AUG , 1981 10...	1.9	.5	7.0	4.7	1.2	9.0	.19	.020
SEP 21...	2.3	.6	11	3.6	1.3	10	.09	<.010
01630542 - PASS RUN NR THORNTON GAP, VA (LAT 38 39 05 LONG 078 21 16)								
AUG , 1981 10...	2.7	.6	20	3.1	13	17	.11	<.010
SEP 21...	5.1	.6	23	1.6	13	18	.08	<.010

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
POTOMAC RIVER BASIN--CONTINUED								
01630543 - ROCKY BR NR THORNTON GAP, VA (LAT 38 41 06 LONG 078 21 10)								
AUG , 1981								
11...	2.5	.6	26	3.4	.7	17	.15	<.010
SEP								
21...	3.1	.5	29	2.4	1.8	16	.13	<.010
01630585 - JEREMYS RUN NR OAK HILL, VA (LAT 38 43 18 LONG 078 23 15)								
AUG , 1981								
12...	2.1	.8	16	5.2	1.1	12	.05	<.010
SEP								
21...	1.9	.6	15	4.7	1.3	12	.03	<.010
01630649 - PHILS ARM RUN NR BROWNTOWN, VA (LAT 38 47 34 LONG 078 14 29)								
AUG , 1981								
12...	2.1	.4	8.3	5.2	.9	16	.04	<.010
SEP								
22...	2.2	.3	7.1	5.7	1.0	14	.05	<.010
01630650 - PHILS ARM RUN TRIB NR BROWNTOWN, VA (LAT 38 47 33 LONG 078 14 26)								
AUG , 1981								
12...	3.4	1.1	16	3.9	1.4	22	.08	<.010
SEP								
22...	3.7	.8	19	2.5	1.3	24	.09	<.010
01630660 - SMITH CREEK NR BROWNTOWN, VA (LAT 38 48 23 LONG 078 11 55)								
AUG , 1981								
20...	2.3	.3	7.6	3.9	1.0	15	.23	<.010
SEP								
22...	2.2	.3	7.6	3.6	1.1	14	.25	<.010
01630670 - GREASY RUN NR BROWNTOWN, VA (LAT 38 47 17 LONG 078 16 03)								
AUG , 1981								
12...	2.3	.5	16	4.5	1.1	16	.22	<.010
SEP								
22...	2.7	.4	17	4.0	1.5	16	.10	<.010
01630680 - LANDS RUN NR BROWNTOWN, VA (LAT 38 49 20 LONG 078 12 22)								
AUG , 1981								
20...	2.6	.4	11	4.8	1.1	15	.07	<.010
SEP								
22...	2.7	.3	11	4.9	1.3	15	.11	<.010
01636202 - HAPPY CK TRIB NR GLEN ECHO, VA (LAT 38 51 17 LONG 078 10 49)								
AUG , 1981								
19...	2.3	.3	13	3.4	1.1	17	.22	<.010
SEP								
22...	2.4	.4	13	3.4	1.4	17	.27	<.010

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH (UNITS)	PH LAB (UNITS)	TEMPER-ATURE (DEG C)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
POTOMAC RIVER BASIN--CONTINUED								
01630543 - ROCKY BR NR THORNTON GAP, VA (LAT 38 41 06 LONG 078 21 10)								
AUG , 1981 11...	1830	.20	64	7.1	7.3	22.0	4.9	2.5
SEP 21...	1750	.13	65	7.5	7.4	16.5	6.1	2.7
01630585 - JEREMYS RUN NR OAK HILL, VA (LAT 38 43 18 LONG 078 23 15)								
AUG , 1981 12...	1000	.56	52	6.6	6.5	19.0	3.4	2.1
SEP 21...	1830	.08	49	6.4	6.5	18.0	2.9	1.9
01630649 - PHILS ARM RUN NR BROWNTOWN, VA (LAT 38 47 34 LONG 078 14 29)								
AUG , 1981 12...	1630	.58	36	6.3	6.9	20.0	2.1	1.0
SEP 22...	1300	.17	33	7.0	7.0	16.5	2.1	.9
01630650 - PHILS ARM RUN TRIB NR BROWNTOWN, VA (LAT 38 47 33 LONG 078 14 26)								
AUG , 1981 12...	1600	.08	49	6.4	6.9	22.0	3.0	1.3
SEP 22...	1300	.03	50	7.2	7.2	20.5	3.0	1.3
01630660 - SMITH CREEK NR BROWNTOWN, VA (LAT 38 48 23 LONG 078 11 55)								
AUG , 1981 20...	1830	.14	31	6.2	6.8	16.5	1.7	.7
SEP 22...	1500	.09	31	6.9	6.9	16.0	1.8	.7
01630670 - GREASY RUN NR BROWNTOWN, VA (LAT 38 47 17 LONG 078 16 03)								
AUG , 1981 12...	1900	.64	52	6.5	7.2	21.0	3.7	1.6
SEP 22...	1130	.23	49	7.4	7.5	18.5	3.7	1.6
01630680 - LANDS RUN NR BROWNTOWN, VA (LAT 38 49 20 LONG 078 12 22)								
AUG , 1981 20...	1700	.18	39	6.5	6.9	18.0	2.3	1.0
SEP 22...	1600	.14	40	7.2	7.1	17.0	2.5	1.0
01636202 - HAPPY CK TRIB NR GLEN ECHO, VA (LAT 38 51 17 LONG 078 10 49)								
AUG , 1981 19...	1330	.43	40	6.9	7.2	16.0	2.5	1.2
SEP 22...	1830	.36	41	7.3	7.3	16.5	2.8	1.2

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
POTOMAC RIVER BASIN--CONTINUED								
01630543 - ROCKY BR NR THORNTON GAP, VA (LAT 38 41 06 LONG 078 21 16)								
AUG , 1981								
11...	2.5	.6	26	3.4	.7	17	.15	<.010
SEP								
21...	3.1	.5	29	2.4	1.8	16	.13	<.010
01630585 - JEREMYS RUN NR OAK HILL, VA (LAT 38 43 18 LONG 078 23 15)								
AUG , 1981								
12...	2.1	.8	16	5.2	1.1	12	.05	<.010
SEP								
21...	1.9	.6	15	4.7	1.3	12	.03	<.010
01630649 - PHILS ARM RUN NR BROWNTOWN, VA (LAT 38 47 34 LONG 078 14 29)								
AUG , 1981								
12...	2.1	.4	8.3	5.2	.9	16	.04	<.010
SEP								
22...	2.2	.3	7.1	5.7	1.0	14	.05	<.010
01630650 - PHILS ARM RUN TRIB NR BROWNTOWN, VA (LAT 38 47 33 LONG 078 14 26)								
AUG , 1981								
12...	3.4	1.1	16	3.9	1.4	22	.08	<.010
SEP								
22...	3.7	.8	19	2.5	1.3	24	.09	<.010
01630668 - SMITH CREEK NR BROWNTOWN, VA (LAT 38 48 23 LONG 078 11 55)								
AUG , 1981								
20...	2.3	.3	7.6	3.9	1.0	15	.23	<.010
SEP								
22...	2.2	.3	7.6	3.6	1.1	14	.25	<.010
01630670 - GREASY RUN NR BROWNTOWN, VA (LAT 38 47 17 LONG 078 16 03)								
AUG , 1981								
12...	2.3	.5	16	4.5	1.1	16	.22	<.010
SEP								
22...	2.7	.4	17	4.0	1.5	16	.10	<.010
01630680 - LANDS RUN NR BROWNTOWN, VA (LAT 38 49 20 LONG 078 12 22)								
AUG , 1981								
20...	2.6	.4	11	4.8	1.1	15	.07	<.010
SEP								
22...	2.7	.3	11	4.9	1.3	15	.11	<.010
01636202 - HAPPY CK TRIB NR GLEN ECHO, VA (LAT 38 51 17 LONG 078 10 49)								
AUG , 1981								
19...	2.3	.3	13	3.4	1.1	17	.22	<.010
SEP								
22...	2.4	.4	13	3.4	1.4	17	.27	<.010

< Less than.

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH (UNITS)	PH LAB (UNITS)	TEMPER-ATURE (DEG C)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
RAPPAHANNOCK RIVER BASIN								
01662100 - HAZEL RIVER NR NETHERS, VA (LAT 38 36 54 LONG 078 15 44)								
AUG , 1981								
18...	1200	1.6	22	6.4	6.9	16.0	1.5	.5
SEP								
24...	1330	1.5	22	7.0	7.0	13.0	1.1	.6
01662150 - HUGHES RIVER NR NETHERS, VA (LAT 38 34 27 LONG 078 17 49)								
AUG , 1981								
13...	1200	4.8	25	6.2	6.9	18.0	1.3	.6
SEP								
23...	1600	1.3	23	7.0	6.9	14.0	1.4	.6
01662160 - BROKENBACK RUN NR NETHERS, VA (LAT 38 34 16 LONG 078 18 01)								
AUG , 1981								
13...	1100	2.0	22	6.5	6.8	18.0	1.1	.5
SEP								
23...	1700	.35	21	6.9	6.9	13.5	1.3	.5
01662170 - ROCKY RUN AT NETHERS, VA (LAT 38 34 39 LONG 078 16 57)								
AUG , 1981								
18...	1100	.03	31	6.5	6.5	16.5	1.4	.7
SEP								
23...	1800	.01	32	6.5	6.5	16.5	1.5	.7
01662190 - RAGGED RUN NR ETLAN, VA (LAT 38 31 56 LONG 078 17 44)								
AUG , 1981								
13...	1030	.25	20	5.8	6.7	20.0	1.2	.5
SEP								
24...	1530	.05	20	6.7	6.7	14.5	1.3	.6
01662200 - ROSSON HOLLOW RUN TRIB NR ETLAN, VA, (LAT 38 32 33 LONG 078 16 24)								
AUG , 1981								
13...	1300	.10	27	5.7	6.7	23.0	1.2	.5
SEP								
24...	1430	.01	30	6.3	6.3	22.0	1.4	.5
01662350 - NORTH FORK THORNTON RIVER NR SPERRYVILLE, VA (LAT 38 41 36 LONG 078 16 33)								
AUG , 1981								
18...	1500	.29	48	6.9	7.4	16.5	3.1	1.9
SEP								
23...	1500	.63	50	7.5	7.4	13.5	3.3	2.0
01662370 - PINEY RIVER NEAR SPERRYVILLE, VA (LAT 38 41 46 LONG 078 15 30)								
AUG , 1981								
18...	1630	.41	38	6.8	7.2	17.0	2.6	1.5
SEP								
23...	1400	.80	40	7.3	7.3	14.5	2.8	1.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
RAPPAHANNOCK RIVER BASIN--CONTINUED								
01662100 - HAZEL RIVER NR NETHERS, VA (LAT 38 36 54 LONG 078 15 44)								
AUG , 1981								
18...	1.6	.4	5.9	2.4	.8	12	.08	<.010
SEP								
24...	1.6	.4	6.0	2.0	.9	10	.04	<.010
01662150 - HUGHES RIVER NR NETHERS, VA (LAT 38 34 27 LONG 078 17 49)								
AUG , 1981								
13...	1.5	.3	5.7	3.1	1.0	10	.09	<.010
SEP								
23...	1.6	.3	6.6	1.6	1.0	11	.09	<.010
01662160 - BROKENBACK RUN NR NETHERS, VA (LAT 38 34 16 LONG 078 18 01)								
AUG , 1981								
13...	1.4	.4	4.9	3.1	.7	10	.09	<.010
SEP								
23...	1.5	.4	6.3	1.8	.8	9.8	.08	<.010
01662170 - ROCKY RUN AT NETHERS, VA (LAT 38 34 39 LONG 078 16 57)								
AUG , 1981								
18...	2.5	.6	8.8	3.2	.9	14	.07	<.010
SEP								
23...	2.5	.6	9.7	2.8	1.1	13	.08	<.010
01662190 - RAGGED RUN NR ETLAN, VA (LAT 38 31 56 LONG 078 17 44)								
AUG , 1981								
13...	1.7	.6	6.1	3.1	.9	12	.20	<.010
SEP								
24...	1.8	.6	6.8	2.4	1.0	12	.19	<.010
01662200 - ROSSON HOLLOW RUN TRIB NR ETLAN, VA. (LAT 38 32 33 LONG 078 16 24)								
AUG , 1981								
13...	2.2	.5	7.3	3.2	1.0	14	.05	<.010
SEP								
24...	2.3	.6	8.0	2.2	1.2	14	.09	<.010
01662350 - NORTH FORK THORNTON RIVER NR SPERRYVILLE, VA (LAT 38 41 36 LONG 078 16 33)								
AUG , 1981								
18...	2.7	.3	19	3.5	1.0	18	.07	<.010
SEP								
23...	2.8	.4	19	3.6	1.2	17	.03	<.010
01662370 - PINEY RIVER NEAR SPERRYVILLE, VA (LAT 38 41 46 LONG 078 15 30)								
AUG , 1981								
18...	2.1	.2	11	3.0	.9	16	.05	<.010
SEP								
23...	2.2	.3	14	3.1	1.1	15	.02	<.010

< Less than.

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH (UNITS)	PH LAB (UNITS)	TEMPER-ATURE (DEG C)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
RAPPAHANNOCK RIVER BASIN--CONTINUED								
01662480 - RUSH RIVER AT RT 622 NR WASHINGTON, VA (LAT 38 44 29 LONG 078 13 08)								
AUG , 1981								
18...	1900	.15	60	6.9	7.4	18.0	4.8	2.1
SEP								
23...	1200	.41	57	7.4	7.4	14.0	4.4	1.9
01665260 - RAPIDAN RIVER NR GRAVES MILL, VA (LAT 38 26 38 LONG 078 22 11)								
AUG , 1981								
17...	1700	6.9	21	6.8	7.0	18.0	1.3	.6
SEP								
24...	0925	3.5	22	7.1	7.0	12.0	1.4	.6
01665270 - STAUNTON RIVER NR GRAVES MILL, VA (LAT 38 26 38 LONG 078 22 12)								
AUG , 1981								
17...	1630	2.3	16	6.4	6.8	17.0	.9	.3
SEP								
24...	0850	1.4	19	7.0	6.9	12.5	1.0	.3
01665340 - CONWAY RIVER NR KINDERHOOK, VA (LAT 38 24 59 LONG 078 26 17)								
AUG , 1981								
17...	1420	3.5	23	6.7	6.9	17.0	1.3	.5
SEP								
24...	1035	1.7	25	6.9	7.0	12.5	1.5	.6
01665343 - CONWAY RIVER TRIB NEAR KINDERHOOK, VA (LAT 38 24 16 LONG 078 26 22)								
AUG , 1981								
17...	1300	.97	28	6.8	7.1	17.0	1.8	.7
SEP								
24...	1130	1.2	27	6.6	7.1	12.5	1.9	.7
01665440 - SOUTH RIVER NR MCMULLEN, VA (LAT 38 22 01 LONG 078 27 38)								
AUG , 1981								
17...	1130	.89	37	7.0	7.1	17.5	2.8	1.3
SEP								
24...	1205	.58	39	6.4	7.0	14.0	2.9	1.3
01665710 - WHITE OAK CANYON TRIB NR SYRIA, VA (LAT 38 32 23 LONG 078 20 53)								
AUG , 1981								
20...	1230	1.1	30	6.8	7.0	17.0	2.0	1.1
SEP								
24...	1800	.22	30	7.0	7.0	14.5	2.1	1.1
01665720 - BERRY HOLLOW TRIB NR NETHERS, VA (LAT 38 32 45 LONG 078 20 37)								
AUG , 1981								
14...	1300	.10	29	6.5	6.8	19.0	1.4	.5
SEP								
24...	1900	.02	28	6.7	6.7	14.0	1.4	.5

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SILICA, DIS-SOLVED (MG/L AS SIO2)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N)	NITRO-GEN, AMMONIA DIS-SOLVED (MG/L AS N)
RAPPAHANNOCK RIVER BASIN--CONTINUED								
01662480 - RUSH RIVER AT RT 622 NR WASHINGTON, VA (LAT 38 44 29 LONG 078 13 08)								
AUG , 1981								
18...	2.9	.5	23	4.7	1.3	16	.13	<.010
SEP								
23...	2.6	.3	19	5.5	1.5	13	.05	<.010
01665260 - RAPIDAN RIVER NR GRAVES MILL, VA (LAT 38 26 38 LONG 078 22 11)								
AUG , 1981								
17...	1.3	.2	6.4	2.0	.8	8.8	.06	<.010
SEP								
24...	1.4	.2	6.8	1.4	.8	8.6	.04	<.010
01665270 - STAUNTON RIVER NR GRAVES MILL, VA (LAT 38 26 38 LONG 078 22 12)								
AUG , 1981								
17...	1.4	.3	3.8	2.2	.8	8.8	.10	<.010
SEP								
24...	1.3	.3	4.5	1.6	.9	8.9	.07	<.010
01665340 - CONWAY RIVER NR KINDERHOOK, VA (LAT 38 24 59 LONG 078 26 17)								
AUG , 1981								
17...	1.5	.3	6.2	3.1	.8	9.7	.04	<.010
SEP								
24...	1.6	.3	6.8	2.7	.9	9.6	.04	<.010
01665343 - CONWAY RIVER TRIB NEAR KINDERHOOK, VA (LAT 38 24 16 LONG 078 26 22)								
AUG , 1981								
17...	1.8	.3	8.3	3.2	.8	11	.12	<.010
SEP								
24...	1.9	.2	8.4	2.9	.9	10	.09	<.010
01665440 - SOUTH RIVER NR MCMULLEN, VA (LAT 38 22 01 LONG 078 27 38)								
AUG , 1981								
17...	1.6	.2	13	3.3	.8	11	.22	<.010
SEP								
24...	1.8	.2	12	3.3	1.0	10	.24	<.010
01665710 - WHITE OAK CANYON TRIB NR SYRIA, VA (LAT 38 32 23 LONG 078 20 53)								
AUG , 1981								
20...	1.1	.1	9.3	2.8	1.0	9.1	.07	<.010
SEP								
24...	1.3	.1	10	2.2	1.0	8.8	.06	<.010
01665720 - BERRY HOLLOW TRIB NR NETHERS, VA (LAT 38 32 45 LONG 078 20 37)								
AUG , 1981								
14...	2.2	.6	7.8	3.3	.8	13	.10	<.010
SEP								
24...	2.3	.5	8.5	2.7	.9	14	.11	<.010

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH (UNITS)	PH LAB (UNITS)	TEMPER-ATURE (DEG C)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
RAPPAHANNOCK RIVER BASIN--CONTINUED								
01665730 - CEDAR RUN NR SYRIA, VA (LAT 38 32 22 LONG 078 21 01)								
AUG , 1981 20...	1100	.19	33	6.4	6.5	17.0	2.2	1.3
SEP 24...	1730	.06	35	6.4	6.4	16.0	2.2	1.2
01665800 - ROSE RIVER NR SYRIA, VA (LAT 38 30 55 LONG 078 21 59)								
AUG , 1981 13...	1630	11	30	6.2	7.1	18.0	2.0	1.0
SEP 24...	1630	2.1	20	7.1	7.1	14.0	1.9	1.0
JAMES RIVER BASIN								
02031400 - N FK MOORMANS RIVER NR BROWNS COVE, VA (LAT 38 11 42 LONG 078 43 57)								
SEP , 1981 21...	1400	.48	34	6.8	7.1	17.0	2.0	1.4
02031410 - N FK MOORMANS RIVER TRIB NR HARRISTON, VA (LAT 38 12 33 LONG 078 44 52)								
SEP , 1981 21...	1510	.02	17	5.5	6.4	15.0	.8	.3
02031420 - N FK MOORMANS RIVER TRIB NR BROWNS COVE, VA (LAT 38 11 50 LONG 078 44 32)								
SEP , 1981 21...	1430	.10	19	5.6	6.4	15.0	.5	.5
02031430 - N FK MOORMANS RIVER AB BIG BR NR BROWNS COVE, VA (LAT 38 10 12 LONG 078 44 30)								
SEP , 1981 21...	1300	.94	34	7.0	7.3	15.0	2.0	1.4
02031440 - N FK MOORMANS RIVER BL BIG BR NR WHITEHALL, VA (LAT 38 09 23 LONG 078 44 56)								
SEP , 1981 21...	1155	1.4	32	7.3	7.2	15.5	1.9	1.3
02031500 - NORTH FORK MOORMANS RIVER NR WHITEHALL VA (LAT 38 08 25 LONG 078 45 05)								
AUG , 1981 17...	1130	.92	35	7.3	7.2	19.0	1.8	1.3
SEP 22...	1145	1.5	33	6.9	7.1	16.5	1.8	1.2
02031800 - S FK MOORMANS RIVER NR WHITEHALL, VA (LAT 38 08 13 LONG 078 44 59)								
AUG , 1981 17...	1300	.44	44	7.3	7.3	17.8	2.5	1.8
SEP 22...	1120	2.2	43	7.0	7.3	16.5	2.4	1.6
02032100 - MOORMANS RIVER AT RT 614 NR WHITEHALL, VA (LAT 38 07 45 LONG 078 43 27)								
AUG , 1981 17...	1345	.19	53	6.9	6.8	22.0	3.3	1.9
SEP 22...	1035	.43	59	6.7	7.1	17.0	3.3	2.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
RAPPAHANNOCK RIVER BASIN--CONTINUED								
01665730 - CEDAR RUN NR SYRIA, VA (LAT 38 32 22 LONG 078 21 01)								
AUG , 1981								
20...	1.3	.1	11	3.2	1.0	10	.08	<.010
SEP								
24...	1.4	.1	11	2.4	1.2	10	.10	<.010
01665800 - ROSE RIVER NR SYRIA, VA (LAT 38 30 55 LONG 078 21 59)								
AUG , 1981								
13...	1.2	.1	8.8	3.2	.8	9.9	.07	<.010
SEP								
24...	1.3	.2	9.9	1.9	.9	9.7	.05	<.010
JAMES RIVER BASIN								
02031400 - N FK MOORMANS RIVER NR BROWNS COVE, VA (LAT 38 11 42 LONG 078 43 57)								
SEP , 1981								
21...	1.8	.3	12	3.0	.9	13	.05	<.010
02031410 - N FK MOORMANS RIVER TRIB NR HARRISTON, VA (LAT 38 12 33 LONG 078 44 52)								
SEP , 1981								
21...	.5	.9	2.9	2.2	.6	5.1	.08	<.010
02031420 - N FK MOORMANS RIVER TRIB NR BROWNS COVE, VA (LAT 38 11 50 LONG 078 44 32)								
SEP , 1981								
21...	.6	.9	2.6	3.0	.7	5.4	.07	<.010
02031430 - N FK MOORMANS RIVER AB BIG BR NR BROWNS COVE, VA (LAT 38 10 12 LONG 078 44 30)								
SEP , 1981								
21...	1.9	.4	12	3.1	.9	12	.03	<.010
02031440 - N FK MOORMANS RIVER BL BIG BR NR WHITEHALL, VA (LAT 38 09 23 LONG 078 44 56)								
SEP , 1981								
21...	1.7	.5	11	3.4	.9	11	.03	<.010
02031500 - NORTH FORK MOORMANS RIVER NR WHITEHALL VA (LAT 38 08 25 LONG 078 45 05)								
AUG , 1981								
17...	1.8	.7	11	3.4	.8	10	.08	<.010
SEP								
22...	1.5	.5	9.4	4.1	1.0	10	.04	<.010
02031800 - S FK MOORMANS RIVER NR WHITEHALL, VA (LAT 38 08 13 LONG 078 44 59)								
AUG , 1981								
17...	2.3	.7	16	3.5	.9	14	.08	<.010
SEP								
22...	1.7	.4	15	4.7	1.3	12	.04	.010
02032100 - MOORMANS RIVER AT RT 614 NR WHITEHALL, VA (LAT 38 07 45 LONG 078 43 27)								
AUG , 1981								
17...	2.4	.7	19	3.8	1.2	12	.02	<.010
SEP								
22...	2.2	.4	21	4.7	1.6	10	.05	.040

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

JAMES RIVER BASIN--CONTINUED

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE LAB (UMHOS)	PH (UNITS)	PH LAB (UNITS)	TEMPER-ATURE (DEG C)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
02032110 - DOYLES RIVER NR BROWNS COVE, VA (LAT 38 12 28 LONG 078 40 30)								
AUG , 1981								
17...	1530	.31	47	7.2	7.0	19.5	2.7	1.6
SEP								
22...	0950	.82	44	7.0	7.2	16.5	2.7	1.7
02032310 - MUDDY RUN TRIB NEAR BOONESVILLE, VA (LAT 38 14 02 LONG 078 37 08)								
AUG , 1981								
17...	1615	.25	44	7.6	7.4	21.5	2.9	1.7
SEP								
22...	0915	.64	43	7.0	7.3	16.0	2.7	1.6
02032545 - IVY CREEK NR BOONESVILLE, VA (LAT 38 16 07 LONG 078 36 45)								
AUG , 1981								
17...	1700	.18	50	6.6	6.6	20.0	2.7	1.7
SEP								
22...	0825	.49	45	6.4	6.4	17.0	2.6	1.5
02032580 - SWIFT RUN NR SWIFT RUN, VA (LAT 38 21 24 LONG 078 32 13)								
SEP , 1981								
25...	1300	.01	136	7.3	7.1	14.0	11	2.8
02032583 - SWIFT RUN NR BACON HOLLOW, VA (LAT 38 20 57 LONG 078 32 05)								
SEP , 1981								
25...	1430	.45	77	7.5	7.4	13.0	6.0	1.7
02032586 - SWIFT RUN NR LYDIA, VA (LAT 38 20 47 LONG 078 31 32)								
SEP , 1981								
25...	1500	.84	64	7.3	7.3	13.0	4.5	1.6
02032589 - SWIFT RUN AT LYDIA, VA (LAT 38 20 31 LONG 078 30 40)								
AUG , 1981								
18...	0900	.96	65	7.4	7.3	14.5	4.5	1.8
SEP								
24...	1330	1.1	61	6.8	7.3	15.0	4.4	1.7

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SILICA, DIS- SOLVED (MG/L AS SIO2)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N)
JAMES RIVER BASIN--CONTINUED								
02032110 - DOYLES RIVER NR BROWNS COVE, VA (LAT 38 12 28 LONG 078 40 30)								
AUG , 1981 17...	2.6	.4	16	4.0	1.0	15	.09	<.010
SEP 22...	2.4	.3	15	4.5	1.1	14	.04	<.010
02032310 - MUDDY RUN TRIB NEAR BOONESVILLE, VA (LAT 38 14 02 LONG 078 37 08)								
AUG , 1981 17...	2.6	.2	16	4.1	1.0	15	.04	<.010
SEP 22...	2.3	.2	14	4.4	1.1	14	.04	<.010
02032545 - IVY CREEK NR BOONESVILLE, VA (LAT 38 16 07 LONG 078 36 45)								
AUG , 1981 17...	2.4	.4	15	4.6	.9	12	.10	<.010
SEP 22...	2.1	.3	13	5.0	1.0	12	.06	<.010
02032580 - SWIFT RUN NR SWIFT RUN, VA (LAT 38 21 24 LONG 078 32 13)								
SEP , 1981 25...	6.9	.4	43	2.8	15	12	.22	<.010
02032583 - SWIFT RUN NR BACON HOLLOW, VA (LAT 38 20 57 LONG 078 32 05)								
SEP , 1981 25...	5.1	.4	16	1.8	12	11	.26	<.010
02032586 - SWIFT RUN NR LYDIA, VA (LAT 38 20 47 LONG 078 31 32)								
SEP , 1981 25...	3.8	.3	15	2.3	8.8	11	.16	<.010
02032589 - SWIFT RUN AT LYDIA, VA (LAT 38 20 31 LONG 078 30 40)								
AUG , 1981 18...	3.7	.3	17	3.1	6.8	12	.11	<.010
SEP 24...	3.6	.3	16	2.7	6.8	12	.06	<.010

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

BIG SANDY RIVER BASIN

03207225 - GARDEN CREEK AT MOUNT HERON, VA. (LAT 37 11 17 LONG 082 00 08)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
DEC , 1980 02...	1405	1.6	566	6.9	8.0	11.5	--	--	--	--	--	--
JAN , 1981 12...	1440	--	700	6.9	.0	--	--	--	--	--	--	--
FEB 26...	0800	12	321	7.4	2.0	13.3	--	--	--	--	--	--
APR 06...	1240	13	230	6.9	10.0	11.0	--	--	--	--	--	--
MAY 18...	1400	4.1	410	8.1	18.5	9.4	--	--	--	--	--	--
JUL 09...	1030	2.4	665	8.4	23.5	8.9	--	--	--	--	--	--
AUG 25...	1530	.49	740	9.1	29.0	9.2	320	260	67	37	37	3.6

03207250 - DISMAL CREEK AT WHITEWOOD, VA. (LAT 37 14 08 LONG 081 51 27)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
DEC , 1980 02...	1220	6.4	364	6.7	6.0	11.8	--	--	--	--	--	--
JAN , 1981 13...	0900	3.2	390	6.4	.0	13.6	--	--	--	--	--	--
FEB 25...	1505	47	202	7.1	10.0	10.9	--	--	--	--	--	--
APR 06...	1410	38	220	6.5	10.5	10.8	--	--	--	--	--	--
MAY 19...	1115	78	240	7.4	13.5	9.9	--	--	--	--	--	--
JUL 09...	0815	13	365	8.1	20.0	7.3	--	--	--	--	--	--
AUG 27...	0845	4.2	468	8.2	17.5	8.5	160	86	39	16	32	2.3

03207295 - LOWER BIG BRANCH NEAR PATTERSON, VA. (LAT 37 16 03 LONG 081 59 49)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
DEC , 1980 02...	1320	2.2	69	6.7	8.0	11.1	--	--	--	--	--	--
JAN , 1981 13...	1030	1.0	78	6.5	.0	13.6	--	--	--	--	--	--
FEB 25...	1605	7.4	59	6.9	9.0	11.2	--	--	--	--	--	--
APR 06...	1320	9.2	65	6.5	10.0	10.6	--	--	--	--	--	--
MAY 19...	1005	7.6	72	6.5	13.0	10.2	--	--	--	--	--	--
JUL 09...	0915	2.2	84	7.3	18.0	8.9	--	--	--	--	--	--
AUG 27...	0730	.03	130	7.7	17.5	7.3	52	2.0	14	4.2	2.8	1.7

03207398 - TRACE FORK BRANCH NEAR VANSANT, VA. (LAT 37 13 05 LONG 082 06 02)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
DEC , 1980 04...	0925	1.4	404	7.7	1.0	14.8	--	--	--	--	--	--
JAN , 1981 13...	1340	2.6	375	6.5	.5	--	--	--	--	--	--	--
FEB 25...	1205	16	212	7.4	8.0	11.7	--	--	--	--	--	--
APR 07...	0815	13	210	6.2	5.0	12.6	--	--	--	--	--	--
MAY 19...	1315	67	205	6.9	14.0	10.0	--	--	--	--	--	--
JUL 07...	0815	6.4	320	7.8	19.0	8.9	--	--	--	--	--	--
AUG 25...	1400	.52	470	9.5	28.0	6.7	200	130	49	20	19	3.2

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

BIG SANDY RIVER BASIN--CONTINUED

03207225 - GARDEN CREEK AT MOUNT HERON, VA. (LAT 37 11 17 LONG 082 00 08)

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)
DEC , 1980 02...	107	190	--	--	--	378	--	--	--	--	--	--
JAN , 1981 12...	77	250	--	--	--	470	--	--	--	--	--	--
FEB 26...	34	110	--	--	--	197	--	--	--	--	--	--
APR 06...	26	71	--	--	--	152	--	--	--	--	--	--
MAY 18...	54	130	--	--	--	252	--	--	--	--	--	--
JUL 09...	95	200	--	--	--	472	--	--	--	--	--	--
AUG 25...	63	300	7.6	.1	4.2	576	.02	.010	1	<1	100	2

03207250 - DISMAL CREEK AT WHITEWOOD, VA. (LAT 37 14 08 LONG 081 51 27)

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)
DEC , 1980 02...	92	110	--	--	--	225	--	--	--	--	--	--
JAN , 1981 13...	63	120	--	--	--	248	--	--	--	--	--	--
FEB 25...	25	59	--	--	--	121	--	--	--	--	--	--
APR 06...	29	56	--	--	--	132	--	--	--	--	--	--
MAY 19...	43	62	--	--	--	153	--	--	--	--	--	--
JUL 09...	66	100	--	--	--	232	--	--	--	--	--	--
AUG 27...	77	140	2.8	<.1	6.1	303	.14	<.010	1	<1	100	1

03207295 - LOWER BIG BRANCH NEAR PATTERSON, VA. (LAT 37 16 03 LONG 081 59 49)

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)
DEC , 1980 02...	34	15	--	--	--	48	--	--	--	--	--	--
JAN , 1981 13...	16	15	--	--	--	47	--	--	--	--	--	--
FEB 25...	8.0	14	--	--	--	41	--	--	--	--	--	--
APR 06...	8.0	14	--	--	--	43	--	--	--	--	--	--
MAY 19...	19	12	--	--	--	51	--	--	--	--	--	--
JUL 09...	20	13	--	--	--	58	--	--	--	--	--	--
AUG 27...	50	12	1.2	<.1	7.4	76	.16	.030	1	<1	100	2

03207398 - TRACE FORK BRANCH NEAR VANSANT, VA. (LAT 37 13 05 LONG 082 06 02)

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)
DEC , 1980 04...	99	110	--	--	--	247	--	--	--	--	--	--
JAN , 1981 13...	66	100	--	--	--	255	--	--	--	--	--	--
FEB 25...	21	57	--	--	--	130	--	--	--	--	--	--
APR 07...	22	55	--	--	--	124	--	--	--	--	--	--
MAY 19...	30	59	--	--	--	137	--	--	--	--	--	--
JUL 07...	56	94	--	--	--	237	--	--	--	--	--	--
AUG 25...	73	140	11	<.1	4.2	332	.04	.060	1	<1	100	1

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

BIG SANDY RIVER BASIN--CONTINUED

03207225 - GARDEN CREEK AT MOUNT HERON, VA. (LAT 37 11 17 LONG 082 00 08)

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	200	<10	--	--	--	160
JAN , 1981 12...	--	--	--	--	--	--	50	10	--	--	--	90
FEB 26...	--	--	--	--	--	--	770	20	--	--	--	140
APR 06...	--	--	--	--	--	--	980	10	--	--	--	70
MAY 18...	--	--	--	--	--	--	570	20	--	--	--	50
JUL 09...	--	--	--	--	--	--	2100	20	--	--	--	100
AUG 25...	1	10	7	10	3	12	160	<10	11000	20	10	10

03207250 - DISMAL CREEK AT WHITEWOOD, VA. (LAT 37 14 08 LONG 081 51 27)

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	180	<10	--	--	--	130
JAN , 1981 13...	--	--	--	--	--	--	100	30	--	--	--	120
FEB 25...	--	--	--	--	--	--	540	20	--	--	--	100
APR 06...	--	--	--	--	--	--	600	30	--	--	--	80
MAY 19...	--	--	--	--	--	--	4300	40	--	--	--	340
JUL 09...	--	--	--	--	--	--	390	20	--	--	--	60
AUG 27...	<1	10	7	10	2	17	350	20	7000	14	10	30

03207295 - LOWER BIG BRANCH NEAR PATTERSON, VA. (LAT 37 16 03 LONG 081 59 49)

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	400	30	--	--	--	20
JAN , 1981 13...	--	--	--	--	--	--	110	<10	--	--	--	10
FEB 25...	--	--	--	--	--	--	570	20	--	--	--	20
APR 06...	--	--	--	--	--	--	1400	30	--	--	--	40
MAY 19...	--	--	--	--	--	--	15000	70	--	--	--	400
JUL 09...	--	--	--	--	--	--	630	10	--	--	--	20
AUG 27...	<1	10	4	<10	4	4	1700	<10	7000	12	<10	60

03207398 - TRACE FORK BRANCH NEAR VANSANT, VA. (LAT 37 13 05 LONG 082 06 02)

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
DEC , 1980 04...	--	--	--	--	--	--	140	<10	--	--	--	50
JAN , 1981 13...	--	--	--	--	--	--	170	<10	--	--	--	20
FEB 25...	--	--	--	--	--	--	2200	20	--	--	--	160
APR 07...	--	--	--	--	--	--	380	10	--	--	--	50
MAY 19...	--	--	--	--	--	--	25000	30	--	--	--	680
JUL 07...	--	--	--	--	--	--	820	30	--	--	--	40
AUG 25...	1	10	9	10	3	10	180	<10	16000	10	20	10

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	MANGANESE, DIS-SOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG)	MERCURY RECOV. FM BOT-TOM MA-TERIAL (UG/G AS HG)	SELE-NIUM, TOTAL (UG/L AS SE)	SELE-NIUM, TOTAL IN BOT-TOM MA-TERIAL (UG/G)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATE-RIAL (GM/KG)	SEDI-MENT, SUS-PENDED (MG/L)
BIG SANDY RIVER BASIN--CONTINUED												
03207225 - GARDEN CREEK AT MOUNT HERON, VA. (LAT 37 11 17 LONG 082 00 08)												
DEC , 1980												
02...	170	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981												
12...	10	--	--	--	--	--	--	--	--	--	--	--
FEB												
26...	110	--	--	--	--	--	--	--	--	--	--	--
APR												
06...	30	--	--	--	--	--	--	--	--	--	--	--
MAY												
18...	40	--	--	--	--	--	--	--	--	--	--	--
JUL												
09...	50	--	--	--	--	--	--	--	--	--	--	57
AUG												
25...	10	390	<.1	<.01	1	<1	<1	20	47	<.01	42.0	5
03207250 - DISMAL CREEK AT WHITEWOOD, VA. (LAT 37 14 08 LONG 081 51 27)												
DEC , 1980												
02...	150	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981												
13...	150	--	--	--	--	--	--	--	--	--	--	--
FEB												
25...	70	--	--	--	--	--	--	--	--	--	--	--
APR												
06...	50	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	70	--	--	--	--	--	--	--	--	--	--	286
JUL												
09...	50	--	--	--	--	--	--	--	--	--	--	11
AUG												
27...	20	470	<.1	<.01	<1	<1	<1	10	38	<.01	11.0	6
03207295 - LOWER BIG BRANCH NEAR PATTERSON, VA. (LAT 37 16 03 LONG 081 59 49)												
DEC , 1980												
02...	10	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981												
13...	<10	--	--	--	--	--	--	--	--	--	--	--
FEB												
25...	10	--	--	--	--	--	--	--	--	--	--	--
APR												
06...	10	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	10	--	--	--	--	--	--	--	--	--	--	697
JUL												
09...	10	--	--	--	--	--	--	--	--	--	--	23
AUG												
27...	<10	240	<.1	<.01	<1	<1	5	20	22	<.01	7.00	117
03207398 - TRACE FORK BRANCH NEAR VANSANT, VA. (LAT 37 13 05 LONG 082 06 02)												
DEC , 1980												
04...	40	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981												
13...	30	--	--	--	--	--	--	--	--	--	--	--
FEB												
25...	150	--	--	--	--	--	--	--	--	--	--	--
APR												
07...	40	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	30	--	--	--	--	--	--	--	--	--	--	789
JUL												
07...	10	--	--	--	--	--	--	--	--	--	--	40
AUG												
25...	<10	530	<.1	<.01	<1	<1	<1	10	40	<.01	24.0	6

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
BIG SANDY RIVER BASIN--CONTINUED												
03207407 - DRY FORK AT VANSANT, VA. (LAT 37 13 25 LONG 082 05 42)												
DEC , 1980 04...	1000	.81	364	7.4	1.0	14.6	--	--	--	--	--	--
JAN , 1981 13...	1250	.54	418	6.3	.5	--	--	--	--	--	--	--
FEB 25...	1350	8.1	168	7.3	9.5	11.0	--	--	--	--	--	--
APR 07...	0730	5.7	170	6.4	4.0	11.2	--	--	--	--	--	--
MAY 19...	1415	18	195	7.2	14.5	9.8	--	--	--	--	--	--
JUL 07...	0730	6.8	215	7.5	18.0	8.8	--	--	--	--	--	--
AUG 25...	1430	.28	680	8.6	25.5	7.4	220	96	57	20	66	3.0
03207550 - LYNN CAMP CREEK NEAR HARMAN JUNCTION VA (LAT 37 19 30 LONG 082 09 51)												
DEC , 1980 03...	1355	1.6	788	6.6	4.0	13.7	--	--	--	--	--	--
JAN , 1981 13...	0930	.55	842	6.8	.5	--	--	--	--	--	--	--
FEB 24...	0750	8.1	576	7.1	6.0	11.6	--	--	--	--	--	--
APR 08...	0915	5.9	650	6.1	7.0	11.8	--	--	--	--	--	--
MAY 19...	1530	9.8	675	7.3	16.0	9.4	--	--	--	--	--	--
JUL 08...	0745	2.4	1000	8.2	20.5	9.4	--	--	--	--	--	--
AUG 26...	0745	.67	1085	7.9	17.0	8.8	580	490	130	62	24	3.7
03207805 - CONAWAY CREEK AT CONAWAY, VA. (LAT 37 20 45 LONG 082 12 29)												
DEC , 1980 03...	0930	2.8	909	7.1	3.0	13.0	--	--	--	--	--	--
JAN , 1981 13...	1100	1.6	986	6.8	.0	--	--	--	--	--	--	--
FEB 24...	1535	12	694	7.1	6.5	11.6	--	--	--	--	--	--
APR 08...	0830	7.8	800	6.6	6.5	12.0	--	--	--	--	--	--
MAY 20...	1630	24	625	6.6	13.0	10.4	--	--	--	--	--	--
JUL 08...	1030	4.7	1000	8.4	20.5	8.8	--	--	--	--	--	--
AUG 26...	1045	1.6	1060	8.2	18.0	9.2	480	360	100	57	78	4.1
370418082031201 - RUSSELL FORK ABOVE FULLER BRANCH NEAR COUNCIL,VA (LAT 37 04 18 LONG 082 03 12)												
AUG , 1981 26...	0755	.07	155	8.2	15.0	8.8	45	7.0	12	3.7	10	1.6
370419082031501 - FULLER BRANCH AT MOUTH NR COUNCIL, VA (LAT 37 04 19 LONG 082 03 15)												
AUG , 1981 26...	0745	.10	154	8.2	15.0	8.3	61	5.0	16	5.1	6.8	2.0
370438082034701 - RUSSELL FORK ABOVE BALL CREEK AT COUNCIL, VA. (LAT 37 04 38 LONG 082 03 47)												
AUG , 1981 25...	1430	.26	175	8.2	27.0	8.6	58	.00	16	4.3	11	1.9

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
BIG SANDY RIVER BASIN--CONTINUED												
03207407 - DRY FORK AT VANSANT, VA. (LAT 37 13 25 LONG 082 05 42)												
DEC , 1980 04...	99	69	--	--	--	228	--	--	--	--	--	--
JAN , 1981 13...	84	110	--	--	--	281	--	--	--	--	--	--
FEB 25...	96	16	--	--	--	97	--	--	--	--	--	--
APR 07...	31	40	--	--	--	111	--	--	--	--	--	--
MAY 19...	43	43	--	--	--	127	--	--	--	--	--	--
JUL 07...	64	35	--	--	--	143	--	--	--	--	--	--
AUG 25...	120	190	10	.1	1.6	449	.02	.020	1	<1	100	1
03207550 - LYNN CAMP CREEK NEAR HARMAN JUNCTION VA (LAT 37 19 30 LONG 082 09 51)												
DEC , 1980 03...	76	320	--	--	--	593	--	--	--	--	--	--
JAN , 1981 13...	118	390	--	--	--	696	--	--	--	--	--	--
FEB 24...	40	220	--	--	--	396	--	--	--	--	--	--
APR 08...	48	250	--	--	--	471	--	--	--	--	--	--
MAY 19...	59	270	--	--	--	495	--	--	--	--	--	--
JUL 08...	85	420	--	--	--	770	--	--	--	--	--	--
AUG 26...	95	490	5.8	.1	3.7	878	<.01	.010	1	<1	100	1
03207805 - CONAWAY CREEK AT CONAWAY, VA. (LAT 37 20 45 LONG 082 12 29)												
DEC , 1980 03...	79	360	--	--	--	662	--	--	--	--	--	--
JAN , 1981 13...	84	450	--	--	--	785	--	--	--	--	--	--
FEB 24...	37	300	--	--	--	493	--	--	--	--	--	--
APR 08...	44	310	--	--	--	560	--	--	--	--	--	--
MAY 20...	27	260	--	--	--	449	--	--	--	--	--	--
JUL 08...	92	200	--	--	--	759	--	--	--	--	--	--
AUG 26...	120	500	4.1	.2	8.3	933	.01	<.010	1	<1	100	1
370418082031201 - RUSSELL FORK ABOVE FULLER BRANCH NEAR COUNCIL,VA (LAT 37 04 18 LONG 082 03 12)												
AUG , 1981 26...	36	8.0	16	--	--	90	--	--	--	--	--	--
370419082031501 - FULLER BRANCH AT MOUTH NR COUNCIL, VA (LAT 37 04 19 LONG 082 03 15)												
AUG , 1981 26...	56	10	8.4	--	--	101	--	--	--	--	--	--
370438082034701 - RUSSELL FORK ABOVE BALL CREEK AT COUNCIL, VA. (LAT 37 04 38 LONG 082 03 47)												
AUG , 1981 25...	58	11	15	--	--	111	--	--	--	--	--	--

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED												
03207407 - DRY FORK AT VANSANT, VA. (LAT 37 13 25 LONG 082 05 42)												
DEC , 1980 04...	--	--	--	--	--	--	70	<10	--	--	--	10
JAN , 1981 13...	--	--	--	--	--	--	60	<10	--	--	--	250
FEB 25...	--	--	--	--	--	--	460	30	--	--	--	10
APR 07...	--	--	--	--	--	--	210	10	--	--	--	10
MAY 19...	--	--	--	--	--	--	6900	50	--	--	--	250
JUL 07...	--	--	--	--	--	--	700	30	--	--	--	20
AUG 25...	1	10	6	10	3	8	130	<10	9900	13	20	30
03207550 - LYNN CAMP CREEK NEAR HARMAN JUNCTION VA (LAT 37 19 30 LONG 082 09 51)												
DEC , 1980 03...	--	--	--	--	--	--	380	10	--	--	--	400
JAN , 1981 13...	--	--	--	--	--	--	100	0	--	--	--	220
FEB 24...	--	--	--	--	--	--	1400	10	--	--	--	290
APR 08...	--	--	--	--	--	--	3000	0	--	--	--	290
MAY 19...	--	--	--	--	--	--	7900	10	--	--	--	460
JUL 08...	--	--	--	--	--	--	270	30	--	--	--	70
AUG 26...	1	10	8	20	2	11	280	20	12000	12	20	10
03207805 - CONAWAY CREEK AT CONAWAY, VA. (LAT 37 20 45 LONG 082 12 29)												
DEC , 1980 03...	--	--	--	--	--	--	430	<10	--	--	--	2100
JAN , 1981 13...	--	--	--	--	--	--	130	<10	--	--	--	650
FEB 24...	--	--	--	--	--	--	1200	60	--	--	--	1500
APR 08...	--	--	--	--	--	--	710	10	--	--	--	1300
MAY 20...	--	--	--	--	--	--	4600	20	--	--	--	1400
JUL 08...	--	--	--	--	--	--	640	10	--	--	--	1000
AUG 26...	1	10	10	20	2	15	240	20	17000	9	10	200
370418082031201 - RUSSELL FORK ABOVE FULLER BRANCH NEAR COUNCIL,VA (LAT 37 04 18 LONG 082 03 12)												
AUG , 1981 26...	--	--	--	--	--	--	670	30	--	--	--	30
370419082031501 - FULLER BRANCH AT MOUTH NR COUNCIL, VA (LAT 37 04 19 LONG 082 03 15)												
AUG , 1981 26...	--	--	--	--	--	--	920	80	--	--	--	60
370438082034701 - RUSSELL FORK ABOVE BALL CREEK AT COUNCIL, VA. (LAT 37 04 38 LONG 082 03 47)												
AUG , 1981 25...	--	--	--	--	--	--	400	120	--	--	--	10

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

BIG SANDY RIVER BASIN--CONTINUED

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
03207407 - DRY FORK AT VANSANT, VA. (LAT 37 13 25 LONG 082 05 42)												
DEC , 1980 04...	10	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 13...	<10	--	--	--	--	--	--	--	--	--	--	--
FEB 25...	10	--	--	--	--	--	--	--	--	--	--	--
APR 07...	10	--	--	--	--	--	--	--	--	--	--	--
MAY 19...	10	--	--	--	--	--	--	--	--	--	--	263
JUL 07...	10	--	--	--	--	--	--	--	--	--	--	22
AUG 25...	<10	400	<.1	<.01	<1	<1	<1	10	41	<.01	7.00	2
03207550 - LYNN CAMP CREEK NEAR HARMAN JUNCTION VA (LAT 37 19 30 LONG 082 09 51)												
DEC , 1980 03...	410	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 13...	250	--	--	--	--	--	--	--	--	--	--	--
FEB 24...	230	--	--	--	--	--	--	--	--	--	--	--
APR 08...	210	--	--	--	--	--	--	--	--	--	--	--
MAY 19...	230	--	--	--	--	--	--	--	--	--	--	536
JUL 08...	70	--	--	--	--	--	--	--	--	--	--	9
AUG 26...	10	570	<.1	<.01	<1	<1	<1	10	42	<.01	8.00	2
03207805 - CONAWAY CREEK AT CONAWAY, VA. (LAT 37 20 45 LONG 082 12 29)												
DEC , 1980 03...	1300	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 13...	630	--	--	--	--	--	--	--	--	--	--	--
FEB 24...	1300	--	--	--	--	--	--	--	--	--	--	--
APR 08...	1300	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	1200	--	--	--	--	--	--	--	--	--	--	156
JUL 08...	1000	--	--	--	--	--	--	--	--	--	--	18
AUG 26...	200	1100	.2	<.01	<1	<1	2	20	79	<.01	7.00	6
370418082031201 - RUSSELL FORK ABOVE FULLER BRANCH NEAR COUNCIL,VA (LAT 37 04 18 LONG 082 03 12)												
AUG , 1981 26...	10	--	--	--	--	--	--	--	--	--	--	--
370419082031501 - FULLER BRANCH AT MOUTH NR COUNCIL, VA (LAT 37 04 19 LONG 082 03 15)												
AUG , 1981 26...	30	--	--	--	--	--	--	--	--	--	--	--
370438082034701 - RUSSELL FORK ABOVE BALL CREEK AT COUNCIL, VA. (LAT 37 04 38 LONG 082 03 47)												
AUG , 1981 25...	<10	--	--	--	--	--	--	--	--	--	--	--

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
BIG SANDY RIVER BASIN--CONTINUED										
370436082014101 - JACKSON FORK ABOVE BARTON FORK NEAR COUNCIL, VA. (LAT 37 04 36 LONG 082 01 41)										
AUG , 1981										
25...	1150	.01	226	8.2	17.5	6.1	94	53	21	10
370438082014301 - BARTON FORK BELOW JACKSON FORK NEAR COUNCIL, VA (LAT 37 04 38 LONG 082 01 43)										
AUG , 1981										
25...	1200	.05	333	8.1	18.0	7.4	140	82	33	15
370434082021001 - BARTON FK TRIB NR COUNCIL, VA (LAT 37 04 34 LONG 082 02 10)										
AUG , 1981										
25...	1245	<.01	382	8.3	16.5	3.5	140	50	35	13
370435082022701 - BALL CREEK BL BARTON FK NR COUNCIL, VA (LAT 37 04 35 LONG 082 02 27)										
AUG , 1981										
25...	1345	.22	410	8.4	23.5	9.4	180	110	41	20
03208039 - BALL CREEK NEAR COUNCIL, VA. (LAT 37 04 40 LONG 082 03 45)										
AUG , 1981										
25...	1445	.23	367	8.2	26.5	8.4	170	94	39	18
370512082020501 - BALL CK AB NANCE WHITE CK NR COUNCIL, VA (LAT 37 05 12 LONG 082 02 05)										
AUG , 1981										
25...	1040	.13	509	8.2	16.5	9.0	290	230	62	33
370513082020701 - NANCE WHITE BRANCH NR COUNCIL, VA (LAT 37 05 13 LONG 082 02 07)										
AUG , 1981										
25...	1030	<.01	261	8.0	18.0	6.7	110	.00	26	11
370445082021901 - BALL CREEK ABOVE GRISSOM CREEK NR COUNCIL, VA. (LAT 37 04 45 LONG 082 02 19)										
AUG , 1981										
25...	1115	.14	543	7.9	18.1	9.5	270	180	58	30
370612082030201 - GRISSON CREEK AB VENIA NR COUNCIL, VA (LAT 37 06 12 LONG 082 03 02)										
AUG , 1981										
25...	0830	.01	224	8.0	16.0	6.6	97	.00	24	9.1
370527082030201 - GRISSOM CREEK AT VENIA NR COUNCIL, VA (LAT 37 05 27 LONG 082 03 02)										
AUG , 1981										
25...	0930	.01	208	8.0	17.0	7.9	96	7.0	23	9.3

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED										
370436082014101 - JACKSON FORK ABOVE BARTON FORK NEAR COUNCIL, VA. (LAT 37 04 36 LONG 082 01 41)										
AUG , 1981										
25...	6.2	1.9	41	54	5.5	169	1200	190	450	390
370438082014301 - BARTON FORK BELOW JACKSON FORK NEAR COUNCIL, VA (LAT 37 04 38 LONG 082 01 43)										
AUG , 1981										
25...	10	2.3	62	93	2.9	240	1200	500	830	870
370434082021001 - BARTON FK TRIB NR COUNCIL, VA (LAT 37 04 34 LONG 082 02 10)										
AUG , 1981										
25...	25	2.6	91	30	49	--	840	10	50	10
370435082022701 - BALL CREEK BL BARTON FK NR COUNCIL, VA (LAT 37 04 35 LONG 082 02 27)										
AUG , 1981										
25...	11	3.0	73	130	5.7	283	350	20	40	20
03208039 - BALL CREEK NEAR COUNCIL, VA. (LAT 37 04 40 LONG 082 03 45)										
AUG , 1981										
25...	11	3.1	70	110	6.4	258	340	50	90	80
370512082020501 - BALL CK AB NANCE WHITE CK NR COUNCIL, VA (LAT 37 05 12 LONG 082 02 05)										
AUG , 1981										
25...	9.1	2.7	75	210	1.9	402	280	10	10	20
370513082020701 - NANCE WHITE BRANCH NR COUNCIL, VA (LAT 37 05 13 LONG 082 02 07)										
AUG , 1981										
25...	10	2.3	110	8.3	11	156	720	30	60	50
370445082021901 - BALL CREEK ABOVE GRISSOM CREEK NR COUNCIL, VA. (LAT 37 04 45 LONG 082 02 19)										
AUG , 1981										
25...	10	2.9	86	190	4.0	398	370	10	20	20
370612082030201 - GRISSON CREEK AB VENIA NR COUNCIL, VA (LAT 37 06 12 LONG 082 03 02)										
AUG , 1981										
25...	8.0	2.5	100	3.0	8.7	146	1700	530	270	290
370527082030201 - GRISSOM CREEK AT VENIA NR COUNCIL, VA (LAT 37 05 27 LONG 082 03 02)										
AUG , 1981										
25...	6.1	2.7	89	6.5	7.3	133	290	60	30	30

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
BIG SANDY RIVER BASIN--CONTINUED												
370452082041501 - RUSSELL FK TRIB NO 1 AT COUNCIL, VA (LAT 37 04 52 LONG 082 04 15)												
AUG , 1981 25...	1550	<.01	140	7.7	28.0	8.2	49	29	12	4.7	5.3	1.9
370501082050301 - RUSSELL FK ABOVE MCFARLAND BRANCH NR COUNCIL, VA (LAT 37 05 01 LONG 082 05 03)												
AUG , 1981 26...	0855	.40	342	8.1	15.5	8.7	140	39	34	13	14	3.1
370456082050301 - BIG BRANCH NEAR COUNCIL, VA. (LAT 37 04 56 LONG 082 05 03)												
AUG , 1981 26...	0930	.03	280	7.9	15.0	8.4	120	70	25	14	6.8	3.4
370508082053201 - RUSSELL FORK ABOVE DOGPEN BRANCH NR COUNCIL, VA. (LAT 37 05 08 LONG 082 05 32)												
AUG , 1981 26...	1030	.42	333	7.4	18.0	9.4	140	54	33	14	12	2.8
370531082071601 - RUSSELL FORK ABOVE TILLER CEM. NR DAVENPORT, VA. (LAT 37 05 31 LONG 082 07 16)												
AUG , 1981 26...	1115	.54	322	8.0	19.5	9.1	130	46	31	13	12	2.8
03208043 - RUSSELL FORK AT DAVENPORT, VA. (LAT 37 05 57 LONG 082 08 10)												
DEC , 1980 02...	1045	1.9	300	7.9	5.5	12.3	--	--	--	--	--	--
JAN , 1981 13...	0900	--	447	6.7	.0	8.8	--	--	--	--	--	--
FEB 23...	1035	26	178	7.0	7.0	11.1	--	--	--	--	--	--
APR 09...	0955	12	160	7.4	11.0	10.5	--	--	--	--	--	--
MAY 18...	1030	6.9	210	7.1	15.0	9.8	--	--	--	--	--	--
JUL 06...	1300	4.8	302	8.6	24.0	8.4	--	--	--	--	--	--
AUG 24...	1230	.59	405	8.9	23.0	10.4	170	89	38	18	12	2.9
26...	1145	--	401	8.4	20.5	10.5	170	78	39	18	14	3.1
370801082043101 - LEFT FORK ABOVE HURRICAN CK NR DAVENPORT, VA (LAT 37 08 01 LONG 082 04 31)												
AUG , 1981 26...	1315	.01	254	8.0	23.0	8.8	110	67	25	12	6.2	2.1
370731082045001 - HURRICANE CK AB PARRET FLETCHER BR NR DAVNPRT,VA (LAT 37 07 31 LONG 082 04 50)												
AUG , 1981 26...	1400	.01	243	8.3	25.0	9.3	100	25	25	10	8.0	2.4
370729082074901 - PARETT FLETCHER BRANCH NR DAVENPORT VA (LAT 37 07 29 LONG 082 07 49)												
AUG , 1981 26...	1415	.01	422	7.5	20.0	8.6	170	140	38	19	16	2.5

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	MANGANESE, DIS-SOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
BIG SANDY RIVER BASIN--CONTINUED												
370452082041501 - RUSSELL FK TRIB NO 1 AT COUNCIL, VA (LAT 37 04 52 LONG 082 04 15)												
AUG , 1981												
25...	370	--	--	--	--	--	--	--	--	--	--	--
370501082050301 - RUSSELL FK ABOVE MCFARLAND BRANCH NR COUNCIL, VA (LAT 37 05 01 LONG 082 05 03)												
AUG , 1981												
26...	120	--	--	--	--	--	--	--	--	--	--	--
370456082050301 - BIG BRANCH NEAR COUNCIL, VA. (LAT 37 04 56 LONG 082 05 03)												
AUG , 1981												
26...	50	--	--	--	--	--	--	--	--	--	--	--
370508082053201 - RUSSELL FORK ABOVE DOGPEN BRANCH NR COUNCIL, VA. (LAT 37 05 08 LONG 082 05 32)												
AUG , 1981												
26...	40	--	--	--	--	--	--	--	--	--	--	--
370531082071601 - RUSSELL FORK ABOVE TILLER CEM. NR DAVENPORT, VA. (LAT 37 05 31 LONG 082 07 16)												
AUG , 1981												
26...	40	--	--	--	--	--	--	--	--	--	--	--
03208043 - RUSSELL FORK AT DAVENPORT, VA. (LAT 37 05 57 LONG 082 08 10)												
DEC , 1980												
02...	20	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981												
13...	890	--	--	--	--	--	--	--	--	--	--	--
FEB												
23...	30	--	--	--	--	--	--	--	--	--	--	--
APR												
09...	40	--	--	--	--	--	--	--	--	--	--	--
MAY												
18...	30	--	--	--	--	--	--	--	--	--	--	--
JUL												
06...	30	--	--	--	--	--	--	--	--	--	--	22
AUG												
24...	30	280	<.1	<.01	<1	<1	15	10	30	<.01	7.00	7
26...	20	--	--	--	--	--	--	--	--	--	--	7
370801082043101 - LEFT FORK ABOVE HURRICAN CK NR DAVENPORT, VA (LAT 37 08 01 LONG 082 04 31)												
AUG , 1981												
26...	20	--	--	--	--	--	--	--	--	--	--	--
370731082045001 - HURRICANE CK AB PARRET FLETCHER BR NR DAVNPRT,VA (LAT 37 07 31 LONG 082 04 50)												
AUG , 1981												
26...	40	--	--	--	--	--	--	--	--	--	--	--
370729082074901 - PARETT FLETCHER BRANCH NR DAVENPORT VA (LAT 37 07 29 LONG 082 07 49)												
AUG , 1981												
26...	<10	--	--	--	--	--	--	--	--	--	--	--

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED												
370452082041501 - RUSSELL FK TRIB NO 1 AT COUNCIL, VA (LAT 37 04 52 LONG 082 04 15)												
AUG , 1981												
25...	--	--	--	--	--	--	2600	50	--	--	--	560
370501082050301 - RUSSELL FK ABOVE MCFARLAND BRANCH NR COUNCIL, VA (LAT 37 05 01 LONG 082 05 03)												
AUG , 1981												
26...	--	--	--	--	--	--	6600	40	--	--	--	300
370456082050301 - BIG BRANCH NEAR COUNCIL, VA. (LAT 37 04 56 LONG 082 05 03)												
AUG , 1981												
26...	--	--	--	--	--	--	410	40	--	--	--	60
370508082053201 - RUSSELL FORK ABOVE DOGPEN BRANCH NR COUNCIL, VA. (LAT 37 05 08 LONG 082 05 32)												
AUG , 1981												
26...	--	--	--	--	--	--	690	80	--	--	--	90
370531082071601 - RUSSELL FORK ABOVE TILLER CEM. NR DAVENPORT, VA. (LAT 37 05 31 LONG 082 07 16)												
AUG , 1981												
26...	--	--	--	--	--	--	590	40	--	--	--	60
03208043 - RUSSELL FORK AT DAVENPORT, VA. (LAT 37 05 57 LONG 082 08 10)												
DEC , 1980												
02...	--	--	--	--	--	--	900	60	--	--	--	50
JAN , 1981												
13...	--	--	--	--	--	--	4300	1000	--	--	--	1000
FEB												
23...	--	--	--	--	--	--	6600	80	--	--	--	150
APR												
09...	--	--	--	--	--	--	290	90	--	--	--	50
MAY												
18...	--	--	--	--	--	--	410	50	--	--	--	30
JUL												
06...	--	--	--	--	--	--	1200	50	--	--	--	50
AUG												
24...	<1	10	8	<10	3	9	450	30	16000	11	10	50
26...	--	--	--	--	--	--	420	30	--	--	--	50
370801082043101 - LEFT FORK ABOVE HURRICAN CK NR DAVENPORT, VA (LAT 37 08 01 LONG 082 04 31)												
AUG , 1981												
26...	--	--	--	--	--	--	380	20	--	--	--	40
370731082045001 - HURRICANE CK AB PARRET FLETCHER BR NR DAVNPRT,VA (LAT 37 07 31 LONG 082 04 50)												
AUG , 1981												
26...	--	--	--	--	--	--	850	20	--	--	--	70
370729082074901 - PARRETT FLETCHER BRANCH NR DAVENPORT VA (LAT 37 07 29 LONG 082 07 49)												
AUG , 1981												
26...	--	--	--	--	--	--	920	<10	--	--	--	70

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

BIG SANDY RIVER BASIN--CONTINUED

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
370452082041501 - RUSSELL FK TRIB NO 1 AT COUNCIL, VA (LAT 37 04 52 LONG 082 04 15)												
AUG , 1981 25...	26	36	2.4	--	--	93	--	--	--	--	--	--
370501082050301 - RUSSELL FK ABOVE MCFARLAND BRANCH NR COUNCIL, VA (LAT 37 05 01 LONG 082 05 03)												
AUG , 1981 26...	99	41	16	--	--	214	--	--	--	--	--	--
370456082050301 - BIG BRANCH NEAR COUNCIL, VA. (LAT 37 04 56 LONG 082 05 03)												
AUG , 1981 26...	50	80	2.5	--	--	183	--	--	--	--	--	--
370508082053201 - RUSSELL FORK ABOVE DUGPEN BRANCH NR COUNCIL, VA. (LAT 37 05 08 LONG 082 05 32)												
AUG , 1981 26...	85	60	11	--	--	217	--	--	--	--	--	--
370531082071601 - RUSSELL FORK ABOVE TILLER CEM. NR DAVENPORT, VA. (LAT 37 05 31 LONG 082 07 16)												
AUG , 1981 26...	83	54	12	--	--	197	--	--	--	--	--	--
03208043 - RUSSELL FORK AT DAVENPORT, VA. (LAT 37 05 57 LONG 082 08 10)												
DEC , 1980 02...	64	71	--	--	--	165	--	--	--	--	--	--
JAN , 1981 13...	133	78	--	--	--	269	--	--	--	--	--	--
FEB 23...	29	39	--	--	--	107	--	--	--	--	--	--
APR 09...	24	36	--	--	--	96	--	--	--	--	--	--
MAY 18...	44	43	--	--	--	121	--	--	--	--	--	--
JUL 06...	61	62	--	--	--	211	--	--	--	--	--	--
AUG 24...	80	91	9.0	<.1	3.0	259	.21	.020	3	<1	100	1
26...	94	100	11	--	--	257	--	--	--	--	--	--
370801082043101 - LEFT FORK ABOVE HURRICAN CK NR DAVENPORT, VA (LAT 37 08 01 LONG 082 04 31)												
AUG , 1981 26...	43	75	1.1	--	--	173	--	--	--	--	--	--
370731082045901 - HURRICANE CK AB PARRET FLETCHER BR NR DAVNPRT,VA (LAT 37 07 31 LONG 082 04 59)												
AUG , 1981 26...	79	34	3.7	--	--	148	--	--	--	--	--	--
370729082074901 - PARRETT FLETCHER BRANCH NR DAVENPORT VA (LAT 37 07 29 LONG 082 07 49)												
AUG , 1981 26...	35	170	3.3	--	--	249	--	--	--	--	--	--

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
BIG SANDY RIVER BASIN--CONTINUED												
370640082051801 - HURRICANE CK AB ROCKHOUSE BR NR DAVENPORT, VA (LAT 37 06 40 LONG 082 05 18)												
AUG , 1981												
26...	1430	.05	287	7.7	25.5	9.3	110	24	29	10	15	2.7
370637082051301 - ROCKHOUSE BRANCH NEAR DAVENPORT, VA. (LAT 37 06 37 LONG 082 05 13)												
AUG , 1981												
26...	1450	<.01	242	7.5	24.5	7.0	90	.00	22	8.6	13	3.2
370621082053701 - HURRICANE CR ABOVE GILBERT FK (LAT 37 06 21 LONG 082 05 37)												
AUG , 1981												
26...	1520	.06	293	8.2	26.0	9.6	120	16	28	11	17	3.1
03208046 - HURRICANE CREEK NEAR DAVENPORT, VA. (LAT 37 06 34 LONG 082 07 42)												
DEC , 1980												
02...	1115	.98	218	7.8	5.5	12.1	--	--	--	--	--	--
JAN , 1981												
13...	0930	--	268	6.8	.0	11.4	--	--	--	--	--	--
FEB												
23...	1115	20	122	6.8	7.0	11.6	--	--	--	--	--	--
APR												
09...	0920	8.4	106	7.3	10.0	9.9	--	--	--	--	--	--
MAY												
18...	1115	1.7	184	7.8	17.0	9.6	--	--	--	--	--	--
JUL												
06...	1345	3.7	202	8.5	24.0	7.6	--	--	--	--	--	--
AUG												
24...	1300	.16	255	8.7	26.0	6.1	99	11	25	8.9	14	2.4
27...	0950	.10	282	8.0	17.0	7.6	110	1.0	28	9.9	17	2.4

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
BIG SANDY RIVER BASIN--CONTINUED												
370640082051801 - HURRICANE CK AB ROCKHOUSE BR NR DAVENPORT, VA (LAT 37 06 40 LONG 082 05 18)												
AUG , 1981												
26...	94	32	6.4	--	--	179	--	--	--	--	--	--
370637082051301 - ROCKHOUSE BRANCH NEAR DAVENPORT, VA. (LAT 37 06 37 LONG 082 05 13)												
AUG , 1981												
26...	110	6.2	9.8	--	--	--	--	--	--	--	--	--
370621082053701 - HURRICANE CK ABOVE GILBERT FK (LAT 37 06 21 LONG 082 05 37)												
AUG , 1981												
26...	99	32	9.3	--	--	185	--	--	--	--	--	--
03208046 - HURRICANE CREEK NEAR DAVENPORT, VA. (LAT 37 06 34 LONG 082 07 42)												
DEC , 1980												
02...	64	42	--	--	--	128	--	--	--	--	--	--
JAN , 1981												
13...	92	38	--	--	--	158	--	--	--	--	--	--
FEB												
23...	22	26	--	--	--	78	--	--	--	--	--	--
APR												
09...	21	27	--	--	--	73	--	--	--	--	--	--
MAY												
18...	49	32	--	--	--	105	--	--	--	--	--	--
JUL												
06...	61	30	--	--	--	116	--	--	--	--	--	--
AUG												
24...	88	33	7.3	.1	4.9	156	.09	.030	2	<1	100	1
27...	110	30	9.0	--	--	173	--	--	--	--	--	--

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED												
370640082051801 - HURRICANE CK AB ROCKHOUSE BR NR DAVENPORT, VA (LAT 37 06 40 LONG 082 05 18)												
AUG , 1981 26...	--	--	--	--	--	--	1500	70	--	--	--	210
370637082051301 - ROCKHOUSE BRANCH NEAR DAVENPORT, VA. (LAT 37 06 37 LONG 082 05 13)												
AUG , 1981 26...	--	--	--	--	--	--	780	90	--	--	--	90
370621082053701 - HURRICANE CR ABOVE GILBERT FK (LAT 37 06 21 LONG 082 05 37)												
AUG , 1981 26...	--	--	--	--	--	--	780	50	--	--	--	70
03208046 - HURRICANE CREEK NEAR DAVENPORT, VA. (LAT 37 06 34 LONG 082 07 42)												
DEC , 1980 02...	--	--	--	--	--	--	510	150	--	--	--	20
JAN , 1981 13...	--	--	--	--	--	--	370	80	--	--	--	30
FEB 23...	--	--	--	--	--	--	11000	60	--	--	--	240
APR 09...	--	--	--	--	--	--	440	80	--	--	--	40
MAY 18...	--	--	--	--	--	--	430	70	--	--	--	20
JUL 06...	--	--	--	--	--	--	4300	30	--	--	--	90
AUG 24...	<1	10	4	<10	4	4	1200	60	6400	10	10	110
27...	--	--	--	--	--	--	790	70	--	--	--	120

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

BIG SANDY RIVER BASIN--CONTINUED

370640082051801 - HURRICANE CK AB ROCKHOUSE BR NR DAVENPORT, VA (LAT 37 06 40 LONG 082 05 18)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
AUG , 1981												
26...	170	--	--	--	--	--	--	--	--	--	--	--

370637082051301 - ROCKHOUSE BRANCH NEAR DAVENPORT, VA. (LAT 37 06 37 LONG 082 05 13)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
AUG , 1981												
26...	70	--	--	--	--	--	--	--	--	--	--	--

370621082053701 - HURRICANE CR ABOVE GILBERT FK (LAT 37 06 21 LONG 082 05 37)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
AUG , 1981												
26...	40	--	--	--	--	--	--	--	--	--	--	--

03208046 - HURRICANE CREEK NEAR DAVENPORT, VA. (LAT 37 06 34 LONG 082 07 42)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
DEC , 1980												
02...	10	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981												
13...	20	--	--	--	--	--	--	--	--	--	--	--
FEB												
23...	30	--	--	--	--	--	--	--	--	--	--	--
APR												
09...	30	--	--	--	--	--	--	--	--	--	--	--
MAY												
18...	20	--	--	--	--	--	--	--	--	--	--	--
JUL												
06...	20	--	--	--	--	--	--	--	--	--	--	--
AUG												
24...	40	210	<.1	<.01	<1	<1	<1	10	28	<.01	5.00	11
27...	80	--	--	--	--	--	--	--	--	--	--	--

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

BIG SANDY RIVER BASIN--CONTINUED

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
370846082062901 - L FK HURRICANE CK AB NEW CAMP BR NR DAVENPORT VA (LAT 37 08 46 LONG 082 06 29)										
AUG , 1981										
25...	0845	.11	679	7.7	16.5	9.1	340	260	73	38
370833082062901 - L F HURRICANE CK AB RATCLIFF FK NR DAVENPORT, VA (LAT 37 08 33 LONG 082 06 29)										
AUG , 1981										
25...	0915	.19	556	7.5	17.0	9.4	250	170	56	27
370752082065601 - LF FK HURRICANE CK AB BOYD BR NR DAVENPORT, VA (LAT 37 07 52 LONG 082 06 56)										
AUG , 1981										
25...	0940	.22	520	7.8	18.0	9.6	240	150	54	25
370754082070001 - BOYD BR NR DAVENPORT, VA (LAT 37 07 54 LONG 082 07 00)										
AUG , 1981										
25...	1000	<.01	261	7.6	17.5	4.2	110	.00	26	11
370726082070201 - LF FK HURRICANE CK AB JAKES FK NR DAVENPORT, VA (LAT 37 07 26 LONG 082 07 02)										
AUG , 1981										
25...	1115	.24	503	8.0	19.5	9.4	230	160	52	24
370730082062001 - JAKES FORK TRIB NR DAVENPORT, VA (LAT 37 07 30 LONG 082 06 20)										
AUG , 1981										
25...	1030	.01	345	7.3	17.0	6.0	150	97	32	16
370724082070001 - JAKES FK AT MOUTH NR DAVENPORT, VA (LAT 37 07 24 LONG 082 07 00)										
AUG , 1981										
25...	1100	.02	361	7.4	18.5	7.1	160	160	40	15
370716082072001 - L F HURRICANE CK AB IVY LICK BR NR DAVENPORT, VA (LAT 37 07 16 LONG 082 07 20)										
AUG , 1981										
25...	1140	.18	479	8.1	21.5	10.5	220	140	51	22
370716082072501 - IVY LICK BR NR DAVENPORT, VA (LAT 37 07 16 LONG 082 07 25)										
AUG , 1981										
25...	1130	.01	184	8.0	20.0	7.0	74	.00	16	8.3
03208048 - LEFT FORK HURRICANE CREEK NEAR DAVENPORT, VA. (LAT 37 06 43 LONG 082 07 40)										
AUG , 1981										
27...	0930	.14	551	8.0	17.0	8.3	230	130	52	24

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED										
370846082062901 - L FK HURRICANE CK AB NEW CAMP BR NR DAVENPORT VA (LAT 37 08 46 LONG 082 06 29)										
AUG , 1981 25...	7.2	3.4	77	250	3.2	464	560	40	30	20
370833082062901 - L F HURRICANE CK AB RATCLIFF FK NR DAVENPORT, VA (LAT 37 08 33 LONG 082 06 29)										
AUG , 1981 25...	14	2.7	83	160	9.5	374	1300	20	50	30
370752082065601 - LF FK HURRICANE CK AB BOYD BR NR DAVENPORT, VA (LAT 37 07 52 LONG 082 06 56)										
AUG , 1981 25...	10	2.8	85	150	3.3	282	700	30	50	50
370754082070001 - BOYD BR NR DAVENPORT, VA (LAT 37 07 54 LONG 082 07 00)										
AUG , 1981 25...	5.5	3.0	110	4.6	2.5	138	920	100	160	160
370726082070201 - LF FK HURRICANE CK AB JAKES FK NR DAVENPORT, VA (LAT 37 07 26 LONG 082 07 02)										
AUG , 1981 25...	10	2.7	83	165	4.9	--	2000	30	40	20
370730082062001 - JAKES FORK TRIB NR DAVENPORT, VA (LAT 37 07 30 LONG 082 06 20)										
AUG , 1981 25...	5.5	2.2	49	91	.9	217	600	180	80	80
370724082070001 - JAKES FK AT MOUTH NR DAVENPORT, VA (LAT 37 07 24 LONG 082 07 00)										
AUG , 1981 25...	5.3	2.0	90	79	1.2	229	1100	40	40	<10
370716082072001 - L F HURRICANE CK AB IVY LICK BR NR DAVENPORT, VA (LAT 37 07 16 LONG 082 07 20)										
AUG , 1981 25...	8.8	2.8	81	130	4.2	317	790	30	30	20
370716082072501 - IVY LICK BR NR DAVENPORT, VA (LAT 37 07 16 LONG 082 07 25)										
AUG , 1981 25...	7.4	2.4	84	4.0	3.8	110	1300	20	60	40
03208048 - LEFT FORK HURRICANE CREEK NEAR DAVENPORT, VA. (LAT 37 06 43 LONG 082 07 40)										
AUG , 1981 27...	20	2.7	95	130	24	384	360	10	20	20

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
BIG SANDY RIVER BASIN--CONTINUED										
03208050 - HURRICANE CREEK AT DAVENPORT, VA. (LAT 37 06 05 LONG 082 08 12)										
AUG , 1981 26...	1200	.25	395	8.4	19.0	10.0	170	85	41	17
03208060 - RUSSELL FORK NEAR DAVENPORT, VA. (LAT 37 06 36 LONG 082 09 27)										
AUG , 1981 27...	0845	.94	428	8.0	18.0	7.9	180	--	40	19
370255082035501 - LITTLE INDIAN CK NR COUNCIL, VA (LAT 37 02 55 LONG 082 05 03)										
AUG , 1981 25...	0900	.06	180	7.9	16.0	9.4	71	6.0	18	6.3
370348082053501 - INDIAN CK AB COPPERHEAD BR NR COUNCIL, VA (LAT 37 03 48 LONG 082 05 35)										
AUG , 1981 25...	1000	.10	296	8.0	18.0	10.4	64	.00	17	5.3
370421082080001 - INDIAN CR ABOVE THREE FORKS NR DUTY, VA. (LAT 37 04 21 LONG 082 08 00)										
AUG , 1981 25...	1245	.19	830	8.0	21.5	9.4	100	--	24	10
370322082073801 - JOHNS FORK NR CANE GAP NR DUTY, VA (LAT 37 03 22 LONG 082 07 38)										
AUG , 1981 26...	0820	.47	337	8.0	13.0	10.1	140	79	29	17
370328082073501 - JOHNS FORK AT MOUTH NR DUTY, VA (LAT 37 03 28 LONG 082 07 35)										
AUG , 1981 26...	0830	.47	469	8.2	14.0	9.9	130	34	28	15
370327082073201 - PATTON BR AB JOHNS FK NR DUTY, VA (LAT 37 03 27 LONG 082 07 32)										
AUG , 1981 26...	0825	<.01	469	8.1	14.0	9.8	130	--	27	14
370416082080301 - THREE FORKS NEAR DUTY, VA. (LAT 37 04 16 LONG 082 08 03)										
AUG , 1981 25...	1315	.55	474	8.0	21.0	9.2	130	32	28	15
370453082083501 - INDIAN CR AT DUTY, VA (LAT 37 04 53 LONG 082 08 35)										
AUG , 1981 25...	1445	.60	596	8.5	23.0	9.3	140	3.0	31	16

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED										
03208050 - HURRICANE CREEK AT DAVENPORT, VA. (LAT 37 06 05 LONG 082 08 12)										
AUG , 1981										
26...	15	2.9	87	96	12	278	270	20	30	20
03208060 - RUSSELL FORK NEAR DAVENPORT, VA. (LAT 37 06 36 LONG 082 09 27)										
AUG , 1981										
27...	14	3.6	100	95	11	257	730	30	70	50
370255082035501 - LITTLE INDIAN CK NR COUNCIL, VA (LAT 37 02 55 LONG 082 05 03)										
AUG , 1981										
25...	4.1	2.4	65	7.7	7.0	--	230	70	30	20
370348082053501 - INDIAN CK AB COPPERHEAD BR NR COUNCIL, VA (LAT 37 03 48 LONG 082 05 35)										
AUG , 1981										
25...	36	2.0	120	21	4.9	176	620	20	30	<10
370421082080001 - INDIAN CR ABOVE THREE FORKS NR DUTY, VA. (LAT 37 04 21 LONG 082 08 00)										
AUG , 1981										
25...	180	3.0	--	--	--	--	--	39	--	33
370322082073801 - JOHNS FORK NR CANE GAP NR DUTY, VA (LAT 37 03 22 LONG 082 07 38)										
AUG , 1981										
26...	8.8	3.1	63	92	3.9	229	1300	20	20	<10
370328082073501 - JOHNS FORK AT MOUTH NR DUTY, VA (LAT 37 03 28 LONG 082 07 35)										
AUG , 1981										
26...	50	2.7	98	130	3.3	313	930	70	110	100
370327082073201 - PATTON BR AB JOHNS FK NR DUTY, VA (LAT 37 03 27 LONG 082 07 32)										
AUG , 1981										
26...	50	2.5	--	--	--	--	650	70	110	100
370416082080301 - THREE FORKS NEAR DUTY, VA. (LAT 37 04 16 LONG 082 08 03)										
AUG , 1981										
25...	50	3.1	100	130	3.3	302	520	50	90	80
370453082083501 - INDIAN CR AT DUTY, VA (LAT 37 04 53 LONG 082 08 35)										
AUG , 1981										
25...	74	3.3	140	130	9.9	--	630	40	50	50

< Less than.

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
BIG SANDY RIVER BASIN--CONTINUED										
370455082083201 - INDIAN CK TRIB NO 2 NR DUTY, VA (LAT 37 04 55 LONG 082 08 32)										
AUG , 1981 25...	1420	.11	1224	7.5	19.5	8.9	700	--	140	84
370206082112701 - CANE CREEK TRIB NO 1 NR DUTY, VA (LAT 37 02 06 LONG 082 11 27)										
AUG , 1981 26...	1340	<.01	724	8.0	24.5	8.0	370	280	93	34
370409082093701 - CANE CR AB TILLER FK NR DUTY, VA (LAT 37 04 09 LONG 082 09 37)										
AUG , 1981 26...	1200	.02	680	8.3	22.0	9.8	310	170	79	28
370333082094401 - TILLER FORK NR DUTY, VA (LAT 37 03 33 LONG 082 09 44)										
AUG , 1981 26...	1550	.43	1326	8.4	21.0	9.8	250	.00	49	31
370400082092301 - TILLER FORK AB LEFT FK NR DUTY, VA (LAT 37 04 00 LONG 082 09 23)										
AUG , 1981 26...	1515	.45	1173	8.9	24.0	--	240	.00	48	29
370401082092001 - LEFT FORK ABV TILLER FORK NEAR DUTY, VA. (LAT 37 04 01 LONG 082 09 20)										
AUG , 1981 26...	1445	.02	408	8.1	25.0	8.1	180	140	35	22
370410082093301 - LEFT FORK AT MOUTH NEAR DUTY, VA. (LAT 37 04 10 LONG 082 09 33)										
AUG , 1981 26...	1153	.47	1122	8.4	18.0	9.7	250	15	52	28
03208067 - CANE CREEK AT DUTY, VA. (LAT 37 04 50 LONG 082 10 13)										
AUG , 1981 25...	1545	.56	1009	8.2	25.0	8.4	240	--	50	28
370454082090601 - INDIAN CK AB CANE CK AT DUTY, VA (LAT 37 04 54 LONG 082 09 06)										
AUG , 1981 25...	1515	.91	663	8.1	25.0	8.6	180	61	38	21
370532082101201 - SULLIVAN BRANCH NR DUTY, VA (LAT 37 05 32 LONG 082 10 12)										
AUG , 1981 27...	1010	.02	453	7.7	18.5	7.3	140	8.0	32	14

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED										
370455082083201 - INDIAN CK TRIB NO 2 NR DUTY, VA (LAT 37 04 55 LONG 082 08 32)										
AUG , 1981										
25...	11	5.7	--	--	--	--	--	20	--	1000
370206082112701 - CANE CREEK TRIB NO 1 NR DUTY, VA (LAT 37 02 06 LONG 082 11 27)										
AUG , 1981										
26...	12	3.4	95	300	2.0	577	5200	30	240	80
370409082093701 - CANE CR AB TILLER FK NR DUTY, VA (LAT 37 04 09 LONG 082 09 37)										
AUG , 1981										
26...	21	3.0	140	190	10	486	1200	50	530	500
370333082094401 - TILLER FORK NR DUTY, VA (LAT 37 03 33 LONG 082 09 44)										
AUG , 1981										
26...	200	3.7	240	370	.7	845	430	30	60	40
370400082092301 - TILLER FORK AB LEFT FK NR DUTY, VA (LAT 37 04 00 LONG 082 09 23)										
AUG , 1981										
26...	180	3.5	250	320	3.4	774	380	40	70	60
370401082092001 - LEFT FORK ABV TILLER FORK NEAR DUTY, VA. (LAT 37 04 01 LONG 082 09 20)										
AUG , 1981										
26...	11	2.6	34	160	1.4	304	790	60	80	50
370410082093301 - LEFT FORK AT MOUTH NEAR DUTY, VA. (LAT 37 04 10 LONG 082 09 33)										
AUG , 1981										
26...	140	3.1	230	300	30	866	590	40	180	180
03208067 - CANE CREEK AT DUTY, VA. (LAT 37 04 50 LONG 082 10 13)										
AUG , 1981										
25...	130	3.4	--	--	--	--	720	30	80	20
370454082090601 - INDIAN CK AB CANE CK AT DUTY, VA (LAT 37 04 54 LONG 082 09 06)										
AUG , 1981										
25...	70	3.3	120	200	9.1	--	430	30	30	10
370532082101201 - SULLIVAN BRANCH NR DUTY, VA (LAT 37 05 32 LONG 082 10 12)										
AUG , 1981										
27...	33	2.7	130	27	36	--	510	20	120	90

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
BIG SANDY RIVER BASIN--CONTINUED										
370552082094501 - SULLIVAN BRANCH AT MOUTH NR DUTY, VA (LAT 37 05 52 LONG 082 09 45)										
AUG , 1981										
26...	1625	<.01	657	7.9	27.0	9.4	180	27	43	17
03208070 - INDIAN CREEK NEAR DAVENPORT, VA. (LAT 37 06 35 LONG 082 09 30)										
AUG , 1981										
27...	0815	1.3	816	8.4	18.0	8.9	210	39	44	24
370646082100301 - BIG BRANCH NR MURPHY, VA (LAT 37 06 46 LONG 082 10 03)										
AUG , 1981										
27...	0920	.01	76	7.8	16.5	7.4	18	--	4.0	1.9
370654082102001 - ABNER BR AT MOUTH NR MURPHY, VA (LAT 37 06 54 LONG 082 10 20)										
AUG , 1981										
27...	0915	.02	192	7.6	17.0	6.2	78	7.0	19	7.4
370718082102601 - RUSSELL FK NR MURPHY, VA (LAT 37 07 18 LONG 082 10 26)										
AUG , 1981										
27...	0850	2.4	678	7.9	19.5	8.1	180	42	40	20
370727082102201 - LAUREL BRANCH NR MURPHY, VA (LAT 37 07 27 LONG 082 10 22)										
AUG , 1981										
27...	0820	<.01	344	7.9	17.0	5.0	180	40	44	17
370827082105501 - RUSSELL FK AB LITTLE FOX CK NR MURPHY, VA (LAT 37 08 27 LONG 082 10 55)										
AUG , 1981										
25...	1515	2.9	766	8.3	25.0	8.5	160	.00	35	17
370847082081801 - JACKSON FORK NR MURPHY, VA (LAT 37 08 47 LONG 082 08 18)										
AUG , 1981										
25...	1330	.47	102	6.7	22.5	8.0	36	12	8.0	3.9
370837082090601 - LITTLE FOX CK AB SPRUCE PINE BR NR MURPHY, VA (LAT 37 08 37 LONG 082 09 06)										
AUG , 1981										
25...	1400	.08	756	7.1	24.0	7.3	390	360	75	48
370842082095001 - LITTLE FOX CK BL SPRUCE PINE BR NR MURPHY, VA (LAT 37 08 42 LONG 082 09 50)										
AUG , 1981										
25...	1430	.10	707	7.6	27.0	8.5	340	300	70	41

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)	MANGANESE, DISSOLVED (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED										
370552082094501 - SULLIVAN BRANCH AT MOUTH NR DUTY, VA (LAT 37 05 52 LONG 082 09 45)										
AUG , 1981										
26...	72	3.7	150	24	100	--	960	20	110	40
03208070 - INDIAN CREEK NEAR DAVENPORT, VA. (LAT 37 06 35 LONG 082 09 30)										
AUG , 1981										
27...	99	3.3	170	240	8.8	539	200	50	20	10
370646082100301 - BIG BRANCH NR MURPHY, VA (LAT 37 06 46 LONG 082 10 03)										
AUG , 1981										
27...	3.8	1.7	--	--	--	--	3900	460	60	40
370654082102001 - ABNER BR AT MOUTH NR MURPHY, VA (LAT 37 06 54 LONG 082 10 20)										
AUG , 1981										
27...	7.7	2.3	71	7.0	7.2	110	1300	200	230	200
370718082102601 - RUSSELL FK NR MURPHY, VA (LAT 37 07 18 LONG 082 10 26)										
AUG , 1981										
27...	68	3.0	140	160	9.5	423	770	30	60	20
370727082102201 - LAUREL BRANCH NR MURPHY, VA (LAT 37 07 27 LONG 082 10 22)										
AUG , 1981										
27...	6.9	2.7	140	22	12	209	1600	10	110	40
370827082105501 - RUSSELL FK AB LITTLE FOX CR NR MURPHY, VA (LAT 37 08 27 LONG 082 10 55)										
AUG , 1981										
25...	100	3.0	190	160	13	465	950	10	50	20
370847082081801 - JACKSON FORK NR MURPHY, VA (LAT 37 08 47 LONG 082 08 18)										
AUG , 1981										
25...	2.7	--	24	19	1.1	70	1300	130	1100	1100
370837082090601 - LITTLE FOX CK AB SPRUCE PINE BR NR MURPHY, VA (LAT 37 08 37 LONG 082 09 06)										
AUG , 1981										
25...	8.2	3.7	29	340	1.5	572	1100	20	170	150
370842082095001 - LITTLE FOX CK BL SPRUCE PINE BR NR MURPHY, VA (LAT 37 08 42 LONG 082 09 50)										
AUG , 1981										
25...	11	3.7	46	290	6.3	493	470	30	40	30

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)
BIG SANDY RIVER BASIN--CONTINUED										
370847082095001 - LITTLE FOX CK TRIB NR MURPHY, VA (LAT 37 08 47 LONG 082 09 50)										
AUG , 1981										
25...	1420	.04	268	7.0	21.5	5.5	120	9.0	28	12
370830082105601 - LITTLE FOX CREEK AT MOUTH NR MURPHY, VA (LAT 37 08 30 LONG 082 10 56)										
AUG , 1981										
25...	1500	.05	630	8.0	24.0	8.6	300	230	66	33
370912082112501 - RUSSELL FK AB FOX CK NR MURPHY, VA (LAT 37 09 12 LONG 082 11 25)										
AUG , 1981										
26...	1120	3.2	750	8.2	20.0	4.9	160	.00	35	17
370934082074201 - FOX CK BL JACKSON BR NR MURPHY, VA (LAT 37 09 34 LONG 082 07 42)										
AUG , 1981										
26...	0915	.04	667	7.6	14.0	9.2	320	300	59	43
370949082082601 - FOX CK AB DICK BR NR MURPHY, VA (LAT 37 09 49 LONG 082 08 26)										
AUG , 1981										
26...	0950	.03	696	7.7	15.0	8.3	340	330	67	42
371000082073201 - DICK BRANCH NR MURPHY, VA (LAT 37 10 00 LONG 082 07 32)										
AUG , 1981										
26...	0830	.03	399	7.9	14.5	9.6	180	120	39	21
370953082082901 - DICK BRANCH AB FOX CK NR MURPHY, VA (LAT 37 09 53 LONG 082 08 29)										
AUG , 1981										
26...	0945	.03	429	7.9	15.0	9.6	200	91	49	19
370946082102301 - LF FK NR MURPHY, VA (LAT 37 09 46 LONG 082 10 23)										
AUG , 1981										
26...	1045	.01	150	7.8	18.0	6.9	52	31	11	5.9
03208080 - FOX CREEK NEAR COLLEY, VA. (LAT 37 09 17 LONG 082 11 23)										
AUG , 1981										
26...	1100	.07	434	7.8	18.0	10.2	200	130	47	21
370951082122401 - RUSSELL FK AB PAWPAW CK NR COLLEY, VA (LAT 37 09 51 LONG 082 12 24)										
AUG , 1981										
26...	1430	2.4	713	8.1	25.0	9.4	160	.00	36	17

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED										
370847082095001 - LITTLE FOX CK TRIB NR MURPHY, VA (LAT 37 08 47 LONG 082 09 50)										
AUG , 1981 25...	6.1	2.0	110	9.2	5.4	150	2100	340	320	250
370830082105601 - LITTLE FOX CREEK AT MOUTH NR MURPHY, VA (LAT 37 08 30 LONG 082 10 56)										
AUG , 1981 25...	10	3.3	70	220	7.1	437	290	<10	20	10
370912082112501 - RUSSELL FK AB FOX CK NR MURPHY, VA (LAT 37 09 12 LONG 082 11 25)										
AUG , 1981 26...	98	3.0	140	160	13	460	1500	20	100	40
370934082074201 - FOX CK BL JACKSON BR NR MURPHY, VA (LAT 37 09 34 LONG 082 07 42)										
AUG , 1981 26...	7.5	3.3	22	300	2.0	467	700	20	90	70
370949082082601 - FOX CK AB DICK BR NR MURPHY, VA (LAT 37 09 49 LONG 082 08 26)										
AUG , 1981 26...	6.5	3.7	10	340	2.8	519	2200	140	370	290
371000082073201 - DICK BRANCH NR MURPHY, VA (LAT 37 10 00 LONG 082 07 32)										
AUG , 1981 26...	4.8	2.7	59	110	2.2	272	1100	110	150	130
370953082082901 - DICK BRANCH AB FOX CK NR MURPHY, VA (LAT 37 09 53 LONG 082 08 29)										
AUG , 1981 26...	5.1	2.8	110	87	3.2	286	240	10	20	10
370946082102301 - LF FK NR MURPHY, VA (LAT 37 09 46 LONG 082 10 23)										
AUG , 1981 26...	4.2	2.0	21	34	.7	90	270	10	10	10
03208080 - FOX CREEK NEAR COLLEY, VA. (LAT 37 09 17 LONG 082 11 23)										
AUG , 1981 26...	6.3	2.6	77	110	3.8	285	430	40	20	20
370951082122401 - RUSSELL FK AB PAWPAW CK NR COLLEY, VA (LAT 37 09 51 LONG 082 12 24)										
AUG , 1981 26...	85	3.1	160	150	15	425	480	40	30	10

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
BIG SANDY RIVER BASIN--CONTINUED												
03208086 - PAWPAW CR. ABOVE WILDCAT BR. NR PRATER, VA. (LAT 37 10 34 LONG 082 11 20)												
JAN , 1981 14...	1000	.24	59	6.1	.0	13.8	25	--	5.9	2.5	2.9	1.1
FEB 24...	1300	4.2	48	7.4	5.5	--	17	8.0	3.7	1.8	1.7	1.0
371005082115801 - PAWPAW CK AB HACKNEY HOLLOW NR PRATER, VA (LAT 37 10 05 LONG 082 11 58)												
AUG , 1981 26...	1315	.02	107	7.5	23.0	7.4	34	.00	9.0	2.8	6.2	1.6
03208088 - PAWPAW CREEK TRIBUTARY NR COLLEY;VA. (LAT 37 10 06 LONG 082 12 02)												
AUG , 1981 26...	1330	<.01	126	7.5	28.5	8.0	35	7.0	8.0	3.7	6.1	3.0
370953082121301 - PAWPAW CK AB LITTLE PAWPAW NR COLLEY, VA (LAT 37 09 53 LONG 082 12 13)												
AUG , 1981 26...	1400	.03	116	7.1	22.0	5.8	35	34	8.0	3.7	6.0	1.8
03208089 - LITTLE PAWPAW CREEK NEAR COLLEY, VA. (LAT 37 10 00 LONG 082 12 17)												
AUG , 1981 26...	1415	.01	260	7.8	20.5	7.0	110	27	27	11	5.4	2.1
03208090 - PAWPAW CREEK NEAR COLLEY, VA. (LAT 37 09 56 LONG 082 12 23)												
AUG , 1981 26...	1430	.03	174	8.3	21.3	7.4	55	2.0	14	4.9	7.8	2.5
371013082141101 - RUSSELL FORK AT VIERS NR COLLEY, VA (LAT 37 10 13 LONG 082 14 11)												
AUG , 1981 26...	1515	1.8	556	7.2	24.5	8.3	160	40	36	17	51	3.0
371016082141201 - LAUREL BR (NORTH) AT VIERS NR COLLEY, VA (LAT 37 10 16 LONG 082 14 12)												
AUG , 1981 26...	1600	.01	332	8.0	22.0	8.8	140	19	36	12	7.4	2.6
03208100 - RUSSELL FORK NEAR BIRCHLEAF, VA. (LAT 37 09 49 LONG 082 15 20)												
JUL , 1981 06...	1445	18	390	8.2	24.0	7.6	--	--	--	--	--	--
AUG 24...	1400	4.7	435	8.7	26.0	8.4	140	40	31	15	35	2.8
26...	1645	--	490	8.2	25.0	8.4	160	46	36	16	44	3.0
SEP 24...	1100	--	446	8.2	--	--	150	45	34	15	35	3.4

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)	SILICA, DIS- SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS- PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT- TOM MA- TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD)
BIG SANDY RIVER BASIN--CONTINUED												
03208086 - PAWPAW CK. ABOVE WILDCAT BR. NR PRATER, VA. (LAT 37 10 34 LONG 082 11 20)												
JAN , 1981												
14...	20	10	.9	<.1	7.6	48	.26	<.010	--	--	--	--
FEB												
24...	9.0	13	.9	<.1	8.1	38	.29	.050	--	--	--	--
371005082115801 - PAWPAW CK AB HACKNEY HOLLOW NR PRATER, VA (LAT 37 10 05 LONG 082 11 58)												
AUG , 1981												
26...	37	7.5	1.3	--	--	65	--	--	--	--	--	--
03208088 - PAWPAW CREEK TRIBUTARY NR COLLEY,VA. (LAT 37 10 06 LONG 082 12 02)												
AUG , 1981												
26...	28	11	6.0	--	--	--	--	--	--	--	--	--
370953082121301 - PAWPAW CK AB LITTLE PAWPAW NR COLLEY, VA (LAT 37 09 53 LONG 082 12 13)												
AUG , 1981												
26...	40	7.0	2.0	--	--	70	--	--	--	--	--	--
03208089 - LITTLE PAWPAW CREEK NEAR COLLEY, VA. (LAT 37 10 00 LONG 082 12 17)												
AUG , 1981												
26...	86	25	5.3	--	--	139	--	--	--	--	--	--
03208090 - PAWPAW CREEK NEAR COLLEY, VA. (LAT 37 09 56 LONG 082 12 23)												
AUG , 1981												
26...	53	11	7.7	--	--	101	--	--	--	--	--	--
371013082141101 - RUSSELL FORK AT VIERS NR COLLEY, VA (LAT 37 10 13 LONG 082 14 11)												
AUG , 1981												
26...	120	110	14	--	--	349	--	--	--	--	--	--
371016082141201 - LAUREL BR (NORTH) AT VIERS NR COLLEY, VA (LAT 37 10 16 LONG 082 14 12)												
AUG , 1981												
26...	120	24	7.2	--	--	182	--	--	--	--	--	--
03208100 - RUSSELL FORK NEAR BIRCHLEAF, VA. (LAT 37 09 49 LONG 082 15 20)												
JUL , 1981												
06...	90	72	--	--	--	226	--	--	--	--	--	--
AUG												
24...	99	100	9.5	.1	2.6	279	.04	<.010	2	<1	100	3
26...	110	110	10	--	--	324	--	--	--	--	--	--
SEP												
24...	102	98	9.5	--	--	268	--	--	--	--	--	--

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED												
03208086 - PAWPAW CR. ABOVE WILDCAT BR. NR PRATER, VA. (LAT 37 10 34 LONG 082 11 20)												
JAN , 1981												
14...	--	--	--	--	--	--	290	80	--	--	--	40
FEB												
24...	--	--	--	--	--	--	2900	50	--	--	--	100
371005082115801 - PAWPAW CK AB HACKNEY HOLLOW NR PRATER, VA (LAT 37 10 05 LONG 082 11 58)												
AUG , 1981												
26...	--	--	--	--	--	--	910	50	--	--	--	30
03208088 - PAWPAW CREEK TRIBUTARY NR COLLEY,VA. (LAT 37 10 06 LONG 082 12 02)												
AUG , 1981												
26...	--	--	--	--	--	--	1100	90	--	--	--	50
370953082121301 - PAWPAW CK AB LITTLE PAWPAW NR COLLEY, VA (LAT 37 09 53 LONG 082 12 13)												
AUG , 1981												
26...	--	--	--	--	--	--	580	70	--	--	--	30
03208089 - LITTLE PAWPAW CREEK NEAR COLLEY, VA. (LAT 37 10 00 LONG 082 12 17)												
AUG , 1981												
26...	--	--	--	--	--	--	1100	160	--	--	--	110
03208090 - PAWPAW CREEK NEAR COLLEY, VA. (LAT 37 09 56 LONG 082 12 23)												
AUG , 1981												
26...	--	--	--	--	--	--	890	100	--	--	--	60
371013082141101 - RUSSELL FORK AT VIERS NR COLLEY, VA (LAT 37 10 13 LONG 082 14 11)												
AUG , 1981												
26...	--	--	--	--	--	--	2900	30	--	--	--	80
371016082141201 - LAUREL BR (NORTH) AT VIERS NR COLLEY, VA (LAT 37 10 16 LONG 082 14 12)												
AUG , 1981												
26...	--	--	--	--	--	--	1900	10	--	--	--	60
03208100 - RUSSELL FORK NEAR BIRCHLEAF, VA. (LAT 37 09 49 LONG 082 15 20)												
JUL , 1981												
06...	--	--	--	--	--	--	2100	10	--	--	--	50
AUG												
24...	<1	10	4	<10	3	28	300	10	5900	11	<10	30
26...	--	--	--	--	--	--	710	30	--	--	--	30
SEP												
24...	--	--	--	--	--	--	720	15	--	--	--	50

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
BIG SANDY RIVER BASIN--CONTINUED												
03208085 - PAWPAW CR. ABOVE WILDCAT BR. NR PRATER, VA. (LAT 37 10 34 LONG 082 11 20)												
JAN , 1981												
14...	40	--	--	--	--	--	--	--	--	--	--	--
FEB												
24...	50	--	--	--	--	--	--	--	--	--	--	--
371005082115801 - PAWPAW CK AB HACKNEY HOLLOW NR PRATER, VA (LAT 37 10 05 LONG 082 11 58)												
AUG , 1981												
26...	20	--	--	--	--	--	--	--	--	--	--	--
03208088 - PAWPAW CREEK TRIBUTARY NR COLLEY,VA. (LAT 37 10 06 LONG 082 12 02)												
AUG , 1981												
26...	30	--	--	--	--	--	--	--	--	--	--	--
370953082121301 - PAWPAW CK AB LITTLE PAWPAW NR COLLEY, VA (LAT 37 09 53 LONG 082 12 13)												
AUG , 1981												
26...	10	--	--	--	--	--	--	--	--	--	--	--
03208089 - LITTLE PAWPAW CREEK NEAR COLLEY, VA. (LAT 37 10 00 LONG 082 12 17)												
AUG , 1981												
26...	50	--	--	--	--	--	--	--	--	--	--	--
03208090 - PAWPAW CREEK NEAR COLLEY, VA. (LAT 37 09 56 LONG 082 12 23)												
AUG , 1981												
26...	10	--	--	--	--	--	--	--	--	--	--	--
371013082141101 - RUSSELL FORK AT VIERS NR COLLEY, VA (LAT 37 10 13 LONG 082 14 11)												
AUG , 1981												
26...	40	--	--	--	--	--	--	--	--	--	--	--
371016082141201 - LAUREL BR (NORTH) AT VIERS NR COLLEY, VA (LAT 37 10 16 LONG 082 14 12)												
AUG , 1981												
26...	10	--	--	--	--	--	--	--	--	--	--	--
03208100 - RUSSELL FORK NEAR BIRCHLEAF, VA. (LAT 37 09 49 LONG 082 15 20)												
JUL , 1981												
06...	<10	--	--	--	--	--	--	--	--	--	--	39
AUG												
24...	<10	230	<.1	<.01	<1	<1	1	10	20	<.01	18.0	11
26...	<10	--	--	--	--	--	--	--	--	--	--	--
SEP												
24...	<10	--	--	--	--	--	--	--	--	--	--	--

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
BIG SANDY RIVER BASIN--CONTINUED												
03208240 - WAR FORK AT PRATER, VA. (LAT 37 12 48 LONG 082 11 58)												
DEC , 1980 02...	1400	1.5	320	7.4	7.5	11.8	--	--	--	--	--	--
JAN , 1981 12...	1200	--	404	6.5	.0	13.8	--	--	--	--	--	--
FEB 25...	1115	10	189	6.9	6.0	12.0	--	--	--	--	--	--
APR 08...	1520	6.7	200	7.5	15.5	9.7	--	--	--	--	--	--
MAY 21...	1630	13	180	6.3	18.0	9.1	--	--	--	--	--	--
JUL 07...	0905	2.5	330	7.3	20.0	8.1	--	--	--	--	--	--
AUG 25...	1300	.14	530	8.1	25.0	7.7	210	76	56	16	31	3.5
03208280 - GREENBRIER CREEK AT VICEY, VA. (LAT 37 12 47 LONG 082 14 13)												
DEC , 1980 02...	1315	4.4	340	7.3	7.0	11.8	--	--	--	--	--	--
JAN , 1981 12...	1230	--	424	6.8	.0	--	--	--	--	--	--	--
FEB 25...	1030	20	255	6.9	4.0	12.2	--	--	--	--	--	--
APR 09...	0815	12	290	7.3	11.0	9.9	--	--	--	--	--	--
MAY 21...	1545	16	262	6.1	14.0	9.8	--	--	--	--	--	--
JUL 06...	1550	2.3	563	8.1	25.0	8.2	--	--	--	--	--	--
AUG 25...	1130	.07	585	7.7	21.0	5.5	280	190	67	27	21	3.2
03208400 - MCCLURE RIVER AT NORA, VA. (LAT 37 04 12 LONG 082 20 50)												
DEC , 1980 03...	0915	4.7	460	7.8	3.0	13.0	--	--	--	--	--	--
JAN , 1981 13...	1320	--	606	7.2	.5	14.1	--	--	--	--	--	--
FEB 26...	1350	26	293	6.5	8.0	11.2	--	--	--	--	--	--
APR 09...	1130	36	306	7.9	10.0	10.8	--	--	--	--	--	--
MAY 22...	1035	29	290	7.4	11.0	9.9	--	--	--	--	--	--
JUL 09...	1250	7.8	571	8.4	24.0	9.0	--	--	--	--	--	--
AUG 27...	1355	2.3	745	8.7	21.0	9.1	180	.00	39	19	95	3.4
03208410 - BUFFALO CREEK NEAR NORA, VA. (LAT 37 04 47 LONG 082 20 59)												
DEC , 1980 03...	0830	.39	123	7.0	3.0	13.2	--	--	--	--	--	--
JAN , 1981 13...	1340	--	172	6.9	.5	12.9	--	--	--	--	--	--
FEB 26...	1335	3.6	76	6.2	7.0	10.8	--	--	--	--	--	--
APR 09...	1045	4.5	74	7.4	10.0	10.7	--	--	--	--	--	--
MAY 22...	0945	5.8	68	6.7	11.0	9.6	--	--	--	--	--	--
JUL 09...	1220	.71	143	7.9	24.0	8.2	--	--	--	--	--	--
AUG 27...	1315	.09	228	8.7	21.5	9.9	78	4.0	20	6.9	11	2.1

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
BIG SANDY RIVER BASIN--CONTINUED												
03208240 - WAR FORK AT PRATER, VA. (LAT 37 12 48 LONG 082 11 58)												
DEC , 1980 02...	55	71	--	--	--	198	--	--	--	--	--	--
JAN , 1981 12...	82	94	--	--	--	255	--	--	--	--	--	--
FEB 25...	21	57	--	--	--	130	--	--	--	--	--	--
APR 08...	24	48	--	--	--	122	--	--	--	--	--	--
MAY 21...	19	48	--	--	--	119	--	--	--	--	--	--
JUL 07...	100	69	--	--	--	209	--	--	--	--	--	--
AUG 25...	130	100	23	.1	5.7	340	.14	1.00	2	<1	100	2
03208280 - GREENBRIER CREEK AT VICEY, VA. (LAT 37 12 47 LONG 082 14 13)												
DEC , 1980 02...	32	110	--	--	--	210	--	--	--	--	--	--
JAN , 1981 12...	49	140	--	--	--	283	--	--	--	--	--	--
FEB 25...	16	91	--	--	--	152	--	--	--	--	--	--
APR 09...	14	110	--	--	--	192	--	--	--	--	--	--
MAY 21...	18	89	--	--	--	172	--	--	--	--	--	--
JUL 06...	38	190	--	--	--	381	--	--	--	--	--	--
AUG 25...	85	220	13	.1	3.8	423	.10	.020	1	<1	100	2
03208400 - MCCLURE RIVER AT NORA, VA. (LAT 37 04 12 LONG 082 20 50)												
DEC , 1980 03...	101	120	--	--	--	304	--	--	--	--	--	--
JAN , 1981 13...	161	200	--	--	--	400	--	--	--	--	--	--
FEB 26...	48	71	--	--	--	179	--	--	--	--	--	--
APR 09...	66	66	--	--	--	188	--	--	--	--	--	--
MAY 22...	60	68	--	--	--	174	--	--	--	--	--	--
JUL 09...	149	120	--	--	--	349	--	--	--	--	--	--
AUG 27...	190	170	8.9	.2	4.2	461	.15	.070	2	<1	100	1
03208410 - BUFFALO CREEK NEAR NORA, VA. (LAT 37 04 47 LONG 082 20 59)												
DEC , 1980 03...	37	19	--	--	--	71	--	--	--	--	--	--
JAN , 1981 13...	54	23	--	--	--	101	--	--	--	--	--	--
FEB 26...	10	15	--	--	--	46	--	--	--	--	--	--
APR 09...	13	16	--	--	--	54	--	--	--	--	--	--
MAY 22...	10	15	--	--	--	47	--	--	--	--	--	--
JUL 09...	43	18	--	--	--	83	--	--	--	--	--	--
AUG 27...	74	27	7.6	<.1	5.2	130	.22	.040	1	<1	100	2

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

BIG SANDY RIVER BASIN--CONTINUED

03208240 - WAR FORK AT PRATER, VA. (LAT 37 12 48 LONG 082 11 58)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	540	110	--	--	--	340
JAN , 1981 12...	--	--	--	--	--	--	600	290	--	--	--	400
FEB 25...	--	--	--	--	--	--	2200	20	--	--	--	160
APR 08...	--	--	--	--	--	--	930	50	--	--	--	120
MAY 21...	--	--	--	--	--	--	1300	60	--	--	--	100
JUL 07...	--	--	--	--	--	--	1100	20	--	--	--	180
AUG 25...	<1	10	5	10	3	7	710	30	7800	10	10	330

03208280 - GREENBRIER CREEK AT VICEY, VA. (LAT 37 12 47 LONG 082 14 13)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	390	80	--	--	--	490
JAN , 1981 12...	--	--	--	--	--	--	330	130	--	--	--	490
FEB 25...	--	--	--	--	--	--	780	90	--	--	--	410
APR 09...	--	--	--	--	--	--	1100	60	--	--	--	410
MAY 21...	--	--	--	--	--	--	860	30	--	--	--	270
JUL 06...	--	--	--	--	--	--	360	10	--	--	--	140
AUG 25...	1	10	6	20	3	8	1000	40	12000	21	20	440

03208400 - MCCLURE RIVER AT NORA, VA. (LAT 37 04 12 LONG 082 20 50)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980 03...	--	--	--	--	--	--	350	20	--	--	--	30
JAN , 1981 13...	--	--	--	--	--	--	330	20	--	--	--	40
FEB 26...	--	--	--	--	--	--	140	10	--	--	--	30
APR 09...	--	--	--	--	--	--	300	20	--	--	--	30
MAY 22...	--	--	--	--	--	--	450	20	--	--	--	20
JUL 09...	--	--	--	--	--	--	670	20	--	--	--	50
AUG 27...	<1	20	9	<10	3	8	410	30	16000	15	30	10

03208410 - BUFFALO CREEK NEAR NORA, VA. (LAT 37 04 47 LONG 082 20 59)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980 03...	--	--	--	--	--	--	310	50	--	--	--	20
JAN , 1981 13...	--	--	--	--	--	--	150	10	--	--	--	10
FEB 26...	--	--	--	--	--	--	230	30	--	--	--	20
APR 09...	--	--	--	--	--	--	890	60	--	--	--	30
MAY 22...	--	--	--	--	--	--	370	30	--	--	--	20
JUL 09...	--	--	--	--	--	--	470	70	--	--	--	20
AUG 27...	<1	10	7	<10	4	4	900	60	6000	11	10	50

< Less than.

ANALYSES OF SAMPLES COLLECTED AT PARTIAL-RECORD, SPECIAL STUDY, AND MISCELLANEOUS SITES

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)
BIG SANDY RIVER BASIN--CONTINUED											
03208240 - WAR FORK AT PRATER, VA. (LAT 37 12 48 LONG 082 11 58)											
DEC , 1980											
02...	360	--	--	--	--	--	--	--	--	--	--
JAN , 1981											
12...	400	--	--	--	--	--	--	--	--	--	--
FEB											
25...	150	--	--	--	--	--	--	--	--	--	--
APR											
08...	100	--	--	--	--	--	--	--	--	--	--
MAY											
21...	80	--	--	--	--	--	--	--	--	--	--
JUL											
07...	170	--	--	--	--	--	--	--	--	--	--
AUG											
25...	310	370	.1	<.01	<1	<1	6	10	35	<.01	8.00
03208280 - GREENBRIER CREEK AT VICEY, VA. (LAT 37 12 47 LONG 082 14 13)											
DEC , 1980											
02...	530	--	--	--	--	--	--	--	--	--	--
JAN , 1981											
12...	520	--	--	--	--	--	--	--	--	--	--
FEB											
25...	410	--	--	--	--	--	--	--	--	--	--
APR											
09...	410	--	--	--	--	--	--	--	--	--	--
MAY											
21...	260	--	--	--	--	--	--	--	--	--	--
JUL											
06...	140	--	--	--	--	--	--	--	--	--	--
AUG											
25...	430	740	.6	<.01	<1	<1	<1	30	56	<.01	16.0
03208400 - MCCLURE RIVER AT NORA, VA. (LAT 37 04 12 LONG 082 20 50)											
DEC , 1980											
03...	30	--	--	--	--	--	--	--	--	--	--
JAN , 1981											
13...	30	--	--	--	--	--	--	--	--	--	--
FEB											
26...	30	--	--	--	--	--	--	--	--	--	--
APR											
09...	20	--	--	--	--	--	--	--	--	--	--
MAY											
22...	20	--	--	--	--	--	--	--	--	--	--
JUL											
09...	<10	--	--	--	--	--	--	--	--	--	--
AUG											
27...	20	360	<.1	<.01	<1	<1	<1	20	41	<.01	8.00
03208410 - BUFFALO CREEK NEAR NORA, VA. (LAT 37 04 47 LONG 082 20 59)											
DEC , 1980											
03...	10	--	--	--	--	--	--	--	--	--	--
JAN , 1981											
13...	10	--	--	--	--	--	--	--	--	--	--
FEB											
26...	20	--	--	--	--	--	--	--	--	--	--
APR											
09...	10	--	--	--	--	--	--	--	--	--	--
MAY											
22...	10	--	--	--	--	--	--	--	--	--	--
JUL											
09...	<10	--	--	--	--	--	--	--	--	--	--
AUG											
27...	<10	220	<.1	<.01	<1	<1	<1	20	23	<.01	4.00

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
BIG SANDY RIVER BASIN--CONTINUED												
03208670 - N.F. POUND RIVER AT GILLEY NR FLAT GAP VA (LAT 37 06 15 LONG 082 40 10)												
DEC , 1980 04...	1115	2.7	210	6.7	1.0	13.4	--	--	--	--	--	--
JAN , 1981 14...	1030	--	288	6.2	.0	12.3	--	--	--	--	--	--
FEB 25...	1505	17	71	6.8	8.0	11.3	--	--	--	--	--	--
APR 08...	1545	17	150	7.0	13.0	6.0	--	--	--	--	--	--
MAY 21...	0750	27	51	6.5	9.0	9.8	--	--	--	--	--	--
JUL 08...	1515	1.2	377	6.7	24.0	8.4	--	--	--	--	--	--
AUG 26...	1550	.67	500	7.0	21.0	7.9	210	190	41	25	10	2.3
03208810 - INDIAN CREEK AT POUND, VA. (LAT 37 07 07 LONG 082 35 55)												
DEC , 1980 03...	1500	2.7	700	7.5	6.5	11.7	--	--	--	--	--	--
JAN , 1981 13...	1500	--	808	7.1	.0	--	--	--	--	--	--	--
FEB 26...	0740	9.5	465	7.1	3.0	11.4	--	--	--	--	--	--
APR 08...	1115	15	418	7.6	11.0	11.3	--	--	--	--	--	--
MAY 21...	0920	17	460	7.5	11.0	9.9	--	--	--	--	--	--
JUL 09...	0750	3.6	724	7.9	20.0	8.2	--	--	--	--	--	--
AUG 27...	0740	.99	990	8.0	18.5	7.1	490	390	110	52	24	3.4
03208937 - BIRCHFIELD CREEK NEAR DUNCAN GAP, VA. (LAT 37 03 15 LONG 082 33 15)												
DEC , 1980 04...	1215	1.5	750	7.3	1.0	14.2	--	--	--	--	--	--
JAN , 1981 14...	1200	--	1020	6.8	.0	14.3	--	--	--	--	--	--
FEB 25...	1405	5.8	606	6.5	8.0	11.2	--	--	--	--	--	--
APR 08...	1030	6.6	561	7.7	10.0	11.3	--	--	--	--	--	--
MAY 21...	1315	7.5	600	8.0	15.0	9.7	--	--	--	--	--	--
JUL 08...	1400	4.4	806	8.5	24.0	9.5	--	--	--	--	--	--
AUG 26...	1445	6.1	1230	8.8	22.0	8.7	570	470	120	65	47	6.3
03213572 - KNOX CREEK AT HURLEY, VA. (LAT 37 25 11 LONG 082 01 10)												
DEC , 1980 03...	1245	13	182	6.7	4.0	13.0	--	--	--	--	--	--
JAN , 1981 13...	1230	6.6	205	6.8	.0	13.6	--	--	--	--	--	--
FEB 24...	1020	106	112	6.9	6.5	12.0	--	--	--	--	--	--
APR 07...	1315	38	108	6.1	12.5	11.2	--	--	--	--	--	--
MAY 20...	1120	224	104	6.7	12.0	10.6	--	--	--	--	--	--
JUL 08...	1450	6.7	253	9.4	28.5	9.8	--	--	--	--	--	--
AUG 26...	1500	.66	360	8.4	27.0	8.3	150	61	40	12	14	3.0

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DISSOLVED (MG/L AS SO4)	CHLORIDE, DISSOLVED (MG/L AS CL)	FLUORIDE, DISSOLVED (MG/L AS F)	SILICA, DISSOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)
BIG SANDY RIVER BASIN--CONTINUED												
03208670 - N.F. POUND RIVER AT GILLEY NR FLAT GAP VA (LAT 37 06 15 LONG 082 40 10)												
DEC , 1980 04...	21	63	--	--	--	124	--	--	--	--	--	--
JAN , 1981 14...	23	98	--	--	--	183	--	--	--	--	--	--
FEB 25...	7.0	26	--	--	--	48	--	--	--	--	--	--
APR 08...	9.5	51	--	--	--	101	--	--	--	--	--	--
MAY 21...	6.0	16	--	--	--	36	--	--	--	--	--	--
JUL 08...	10	150	--	--	--	281	--	--	--	--	--	--
AUG 26...	13	190	8.3	.1	9.1	355	.10	.010	1	<1	100	2
03208810 - INDIAN CREEK AT POUND, VA. (LAT 37 07 07 LONG 082 35 55)												
DEC , 1980 03...	85	250	--	--	--	521	--	--	--	--	--	--
JAN , 1981 13...	96	290	--	--	--	620	--	--	--	--	--	--
FEB 26...	40	160	--	--	--	311	--	--	--	--	--	--
APR 08...	36	140	--	--	--	265	--	--	--	--	--	--
MAY 21...	39	160	--	--	--	326	--	--	--	--	--	--
JUL 09...	76	200	--	--	--	509	--	--	--	--	--	--
AUG 27...	96	390	16	.2	5.5	760	.03	.010	1	<1	100	1
03208937 - BIRCHFIELD CREEK NEAR DUNCAN GAP, VA. (LAT 37 03 15 LONG 082 33 15)												
DEC , 1980 04...	84	310	--	--	--	582	--	--	--	--	--	--
JAN , 1981 14...	92	420	--	--	--	758	--	--	--	--	--	--
FEB 25...	41	230	--	--	--	404	--	--	--	--	--	--
APR 08...	47	200	--	--	--	395	--	--	--	--	--	--
MAY 21...	45	--	--	--	--	--	--	--	--	--	--	--
JUL 08...	80	350	--	--	--	575	--	--	--	--	--	--
AUG 26...	97	520	19	.2	7.6	952	.80	.020	1	<1	100	1
03213572 - KNOX CREEK AT HURLEY, VA. (LAT 37 25 11 LONG 082 01 10)												
DEC , 1980 03...	58	43	--	--	--	109	--	--	--	--	--	--
JAN , 1981 13...	43	43	--	--	--	121	--	--	--	--	--	--
FEB 24...	16	28	--	--	--	73	--	--	--	--	--	--
APR 07...	14	30	--	--	--	77	--	--	--	--	--	--
MAY 20...	12	27	--	--	--	73	--	--	--	--	--	--
JUL 08...	61	53	--	--	--	153	--	--	--	--	--	--
AUG 26...	88	63	13	.1	2.4	221	.04	.030	1	<1	100	2

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
BIG SANDY RIVER BASIN--CONTINUED												
03208670 - N.F. POUND RIVER AT GILLEY NR FLAT GAP VA (LAT 37 06 15 LONG 082 40 10)												
DEC , 1980 04...	--	--	--	--	--	--	260	110	--	--	--	1200
JAN , 1981 14...	--	--	--	--	--	--	160	80	--	--	--	1500
FEB 25...	--	--	--	--	--	--	190	50	--	--	--	480
APR 08...	--	--	--	--	--	--	520	70	--	--	--	1300
MAY 21...	--	--	--	--	--	--	250	30	--	--	--	250
JUL 08...	--	--	--	--	--	--	200	40	--	--	--	2400
AUG 26...	<1	10	5	20	3	8	410	40	10000	8	10	2800
03208810 - INDIAN CREEK AT POUND, VA. (LAT 37 07 07 LONG 082 35 55)												
DEC , 1980 03...	--	--	--	--	--	--	390	10	--	--	--	890
JAN , 1981 13...	--	--	--	--	--	--	580	100	--	--	--	1700
FEB 26...	--	--	--	--	--	--	790	240	--	--	--	690
APR 08...	--	--	--	--	--	--	700	40	--	--	--	530
MAY 21...	--	--	--	--	--	--	1100	60	--	--	--	630
JUL 09...	--	--	--	--	--	--	510	40	--	--	--	540
AUG 27...	<1	20	7	20	3	8	890	30	15000	13	10	550
03208937 - BIRCHFIELD CREEK NEAR DUNCAN GAP, VA. (LAT 37 03 15 LONG 082 33 15)												
DEC , 1980 04...	--	--	--	--	--	--	190	20	--	--	--	80
JAN , 1981 14...	--	--	--	--	--	--	330	10	--	--	--	160
FEB 25...	--	--	--	--	--	--	180	<10	--	--	--	240
APR 08...	--	--	--	--	--	--	6100	10	--	--	--	640
MAY 21...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 08...	--	--	--	--	--	--	250	20	--	--	--	80
AUG 26...	1	20	7	20	2	10	280	50	15000	13	10	200
03213572 - KNOX CREEK AT HURLEY, VA. (LAT 37 25 11 LONG 082 01 10)												
DEC , 1980 03...	--	--	--	--	--	--	320	50	--	--	--	40
JAN , 1981 13...	--	--	--	--	--	--	190	30	--	--	--	30
FEB 24...	--	--	--	--	--	--	1100	20	--	--	--	40
APR 07...	--	--	--	--	--	--	1300	10	--	--	--	40
MAY 20...	--	--	--	--	--	--	4500	40	--	--	--	130
JUL 08...	--	--	--	--	--	--	160	30	--	--	--	20
AUG 26...	<1	20	7	10	4	8	760	20	9300	16	20	40

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
BIG SANDY RIVER BASIN--CONTINUED												
03208670 - N.F. POUND RIVER AT GILLEY NR FLAT GAP VA (LAT 37 06 15 LONG 082 40 10)												
DEC , 1980 04...	1400	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 14...	1600	--	--	--	--	--	--	--	--	--	--	--
FEB 25...	480	--	--	--	--	--	--	--	--	--	--	--
APR 08...	1300	--	--	--	--	--	--	--	--	--	--	--
MAY 21...	260	--	--	--	--	--	--	--	--	--	--	--
JUL 08...	2400	--	--	--	--	--	--	--	--	--	--	2
AUG 26...	3000	870	1.8	<.01	<1	<1	<1	20	57	<.01	10.0	7
03208810 - INDIAN CREEK AT POUND, VA. (LAT 37 07 07 LONG 082 35 55)												
DEC , 1980 03...	960	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 13...	1100	--	--	--	--	--	--	--	--	--	--	--
FEB 26...	670	--	--	--	--	--	--	--	--	--	--	--
APR 08...	510	--	--	--	--	--	--	--	--	--	--	--
MAY 21...	630	--	--	--	--	--	--	--	--	--	--	--
JUL 09...	540	--	--	--	--	--	--	--	--	--	--	11
AUG 27...	460	1300	2.6	<.02	<1	<1	<1	20	67	<.01	10.0	5
03208937 - BIRCHFIELD CREEK NEAR DUNCAN GAP, VA. (LAT 37 03 15 LONG 082 33 15)												
DEC , 1980 04...	90	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 14...	150	--	--	--	--	--	--	--	--	--	--	--
FEB 25...	210	--	--	--	--	--	--	--	--	--	--	--
APR 08...	170	--	--	--	--	--	--	--	--	--	--	--
MAY 21...	--	--	--	--	--	--	--	--	--	--	--	--
JUL 08...	70	--	--	--	--	--	--	--	--	--	--	7
AUG 26...	190	1200	.1	<.01	1	<1	<1	10	54	<.01	15.0	7
03213572 - KNOX CREEK AT HURLEY, VA. (LAT 37 25 11 LONG 082 01 10)												
DEC , 1980 03...	30	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 13...	30	--	--	--	--	--	--	--	--	--	--	--
FEB 24...	10	--	--	--	--	--	--	--	--	--	--	--
APR 07...	10	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	10	--	--	--	--	--	--	--	--	--	--	288
JUL 08...	20	--	--	--	--	--	--	--	--	--	--	3
AUG 26...	20	320	<.1	<.01	<1	<1	<1	10	34	<.01	10.0	24

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
BIG SANDY RIVER BASIN--CONTINUED												
03213581 - RACE FORK NEAR KELSA, VA. (LAT 37 26 18 LONG 082 02 45)												
DEC , 1980 03...	1150	3.9	313	6.7	4.0	12.8	--	--	--	--	--	--
JAN , 1981 13...	1305	1.4	360	7.0	.0	13.6	--	--	--	--	--	--
FEB 24...	0935	22	230	6.9	6.0	11.8	--	--	--	--	--	--
APR 07...	1225	12	240	6.2	12.0	10.5	--	--	--	--	--	--
MAY 20...	1210	35	215	6.6	12.5	10.4	--	--	--	--	--	--
JUL 08...	1405	1.5	443	9.3	30.0	7.7	--	--	--	--	--	--
AUG 26...	1400	.30	555	9.1	29.0	9.0	220	170	48	24	21	3.4
03213584 - PAW PAW CREEK NEAR KELSA, VA. (LAT 37 26 07 LONG 082 05 02)												
DEC , 1980 03...	1040	4.8	136	6.8	3.0	13.6	--	--	--	--	--	--
JAN , 1981 13...	1345	2.5	150	7.0	.0	14.0	--	--	--	--	--	--
FEB 24...	0900	21	80	6.7	6.5	11.7	--	--	--	--	--	--
APR 07...	1010	17	90	6.1	8.0	11.2	--	--	--	--	--	--
MAY 20...	1530	27	98	6.7	13.0	10.4	--	--	--	--	--	--
JUL 08...	1215	1.1	320	8.9	27.5	7.9	--	--	--	--	--	--
AUG 26...	1230	.16	418	9.0	26.0	12.1	180	97	46	16	16	3.0
TENNESSEE RIVER BASIN												
03521650 - TOWN HILL CREEK AT DORAN,VA. (LAT 37 05 44 LONG 081 49 27)												
DEC , 1980 02...	1025	.57	162	7.1	6.0	12.0	--	--	--	--	--	--
JAN , 1981 12...	1215	.31	195	7.0	.0	15.3	--	--	--	--	--	--
FEB 26...	1045	3.8	103	7.3	4.0	12.2	--	--	--	--	--	--
APR 06...	1040	7.9	80	6.5	7.0	11.1	--	--	--	--	--	--
MAY 18...	1630	2.6	105	7.9	17.5	9.1	--	--	--	--	--	--
JUL 09...	1240	1.2	148	8.2	24.0	7.6	--	--	--	--	--	--
AUG 27...	1100	.15	240	8.1	18.0	--	--	--	--	--	--	--
03521700 - MUDLICK CREEK AT DORAN, VA. (LAT 37 05 43 LONG 081 50 06)												
DEC , 1980 02...	1100	1.3	224	6.8	6.0	10.4	--	--	--	--	--	--
JAN , 1981 12...	1320	.38	178	6.6	.0	--	--	--	--	--	--	--
FEB 26...	0930	6.3	120	7.3	2.0	13.2	--	--	--	--	--	--
APR 06...	1110	8.5	104	6.5	7.0	11.4	--	--	--	--	--	--
MAY 19...	0800	21	98	6.9	13.0	9.8	--	--	--	--	--	--
JUL 09...	1135	1.6	143	7.8	23.0	8.1	--	--	--	--	--	--
AUG 27...	1030	.26	240	8.3	18.0	8.9	79	.00	19	7.6	20	1.8

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
BIG SANDY RIVER BASIN--CONTINUED												
03213581 - RACE FORK NEAR KELSA, VA. (LAT 37 26 18 LONG 082 02 45)												
DEC , 1980												
03...	26	110	--	--	--	207	--	--	--	--	--	--
JAN , 1981												
13...	30	130	--	--	--	240	--	--	--	--	--	--
FEB												
24...	19	77	--	--	--	150	--	--	--	--	--	--
APR												
07...	16	78	--	--	--	151	--	--	--	--	--	--
MAY												
20...	19	68	--	--	--	150	--	--	--	--	--	--
JUL												
08...	39	160	--	--	--	287	--	--	--	--	--	--
AUG												
26...	52	180	13	.2	4.0	342	.04	.030	2	<1	100	2
03213584 - PAW PAW CREEK NEAR KELSA, VA. (LAT 37 26 07 LONG 082 05 02)												
DEC , 1980												
03...	53	28	--	--	--	85	--	--	--	--	--	--
JAN , 1981												
13...	40	31	--	--	--	85	--	--	--	--	--	--
FEB												
24...	12	19	--	--	--	56	--	--	--	--	--	--
APR												
07...	11	20	--	--	--	60	--	--	--	--	--	--
MAY												
20...	17	21	--	--	--	69	--	--	--	--	--	--
JUL												
08...	88	51	--	--	--	191	--	--	--	--	--	--
AUG												
26...	84	100	9.5	.1	1.9	266	<.01	.020	1	<1	100	1
TENNESSEE RIVER BASIN												
03521650 - TOWN HILL CREEK AT DORAN,VA. (LAT 37 05 44 LONG 081 49 27)												
DEC , 1980												
02...	71	25	--	--	--	104	--	--	--	--	--	--
JAN , 1981												
12...	76	22	--	--	--	122	--	--	--	--	--	--
FEB												
26...	17	27	--	--	--	65	--	--	--	--	--	--
APR												
06...	11	21	--	--	--	58	--	--	--	--	--	--
MAY												
18...	29	23	--	--	--	67	--	--	--	--	--	--
JUL												
09...	40	27	--	--	--	94	--	--	--	--	--	--
AUG												
27...	--	--	--	--	--	--	--	--	--	<1	--	--
03521700 - MUDLICK CREEK AT DORAN, VA. (LAT 37 05 43 LONG 081 50 06)												
DEC , 1980												
02...	126	38	--	--	--	133	--	--	--	--	--	--
JAN , 1981												
12...	37	39	--	--	--	108	--	--	--	--	--	--
FEB												
26...	12	39	--	--	--	72	--	--	--	--	--	--
APR												
06...	12	33	--	--	--	67	--	--	--	--	--	--
MAY												
19...	17	24	--	--	--	53	--	--	--	--	--	--
JUL												
09...	27	38	--	--	--	90	--	--	--	--	--	--
AUG												
27...	86	31	2.3	<.1	7.7	139	.02	<.010	1	<1	100	1

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

BIG SANDY RIVER BASIN--CONTINUED

03213581 - RACE FORK NEAR KELSA, VA. (LAT 37 26 18 LONG 082 02 45)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980												
03...	--	--	--	--	--	--	350	20	--	--	--	220
JAN , 1981												
13...	--	--	--	--	--	--	150	10	--	--	--	240
FEB												
24...	--	--	--	--	--	--	4000	10	--	--	--	220
APR												
07...	--	--	--	--	--	--	3100	10	--	--	--	180
MAY												
20...	--	--	--	--	--	--	5400	50	--	--	--	270
JUL												
08...	--	--	--	--	--	--	110	20	--	--	--	10
AUG												
28...	1	10	7	10	3	8	130	20	9900	11	10	20

03213584 - PAW PAW CREEK NEAR KELSA, VA. (LAT 37 26 07 LONG 082 05 02)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980												
03...	--	--	--	--	--	--	330	80	--	--	--	40
JAN , 1981												
13...	--	--	--	--	--	--	200	50	--	--	--	40
FEB												
24...	--	--	--	--	--	--	760	30	--	--	--	30
APR												
07...	--	--	--	--	--	--	--	--	--	--	--	10
MAY												
20...	--	--	--	--	--	--	2800	40	--	--	--	60
JUL												
08...	--	--	--	--	--	--	180	20	--	--	--	10
AUG												
26...	<1	10	7	<10	3	8	150	10	8800	9	20	10

TENNESSEE RIVER BASIN

03521650 - TOWN HILL CREEK AT DORAN, VA. (LAT 37 05 44 LONG 081 49 27)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980												
02...	--	--	--	--	--	--	220	70	--	--	--	70
JAN , 1981												
12...	--	--	--	--	--	--	160	40	--	--	--	20
FEB												
26...	--	--	--	--	--	--	470	60	--	--	--	60
APR												
06...	--	--	--	--	--	--	680	50	--	--	--	70
MAY												
18...	--	--	--	--	--	--	410	90	--	--	--	440
JUL												
09...	--	--	--	--	--	--	420	90	--	--	--	50
AUG												
27...	<1	--	4	<10	--	7	--	--	5900	--	60	--

03521700 - MUDLICK CREEK AT DORAN, VA. (LAT 37 05 43 LONG 081 50 06)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980												
02...	--	--	--	--	--	--	1600	10	--	--	--	80
JAN , 1981												
12...	--	--	--	--	--	--	140	50	--	--	--	20
FEB												
26...	--	--	--	--	--	--	160	50	--	--	--	10
APR												
06...	--	--	--	--	--	--	270	30	--	--	--	20
MAY												
19...	--	--	--	--	--	--	4600	100	--	--	--	180
JUL												
09...	--	--	--	--	--	--	230	50	--	--	--	20
AUG												
27...	<1	10	6	<10	4	7	1400	80	9200	13	20	50

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

BIG SANDY RIVER BASIN--CONTINUED

03213581 - RACE FORK NEAR KELSA, VA. (LAT 37 26 18 LONG 082 02 45)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
DEC , 1980												
03...	230	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981												
13...	240	--	--	--	--	--	--	--	--	--	--	--
FEB												
24...	120	--	--	--	--	--	--	--	--	--	--	--
APR												
07...	100	--	--	--	--	--	--	--	--	--	--	--
MAY												
20...	110	--	--	--	--	--	--	--	--	--	--	763
JUL												
08...	<10	--	--	--	--	--	--	--	--	--	--	2
AUG												
26...	20	460	<.1	<.01	<1	<1	5	10	27	<.01	15.0	115

03213584 - PAW PAW CREEK NEAR KELSA, VA. (LAT 37 26 07 LONG 082 05 02)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
DEC , 1980												
03...	40	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981												
13...	30	--	--	--	--	--	--	--	--	--	--	--
FEB												
24...	10	--	--	--	--	--	--	--	--	--	--	--
APR												
07...	20	--	--	--	--	--	--	--	--	--	--	--
MAY												
20...	10	--	--	--	--	--	--	--	--	--	--	85
JUL												
08...	20	--	--	--	--	--	--	--	--	--	--	7
AUG												
26...	<10	400	.1	<.01	<1	<1	<1	10	33	<.01	30.0	3

TENNESSEE RIVER BASIN

03521650 - TOWN HILL CREEK AT DORAN,VA. (LAT 37 05 44 LONG 081 49 27)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
DEC , 1980												
02...	40	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981												
12...	30	--	--	--	--	--	--	--	--	--	--	--
FEB												
26...	40	--	--	--	--	--	--	--	--	--	--	--
APR												
06...	50	--	--	--	--	--	--	--	--	--	--	--
MAY												
18...	30	--	--	--	--	--	--	--	--	--	--	--
JUL												
09...	50	--	--	--	--	--	--	--	--	--	--	22
AUG												
27...	--	370	--	<.01	--	<1	--	--	24	--	14.0	1

03521700 - MUDLICK CREEK AT DORAN, VA. (LAT 37 05 43 LONG 081 50 06)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
DEC , 1980												
02...	10	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981												
12...	20	--	--	--	--	--	--	--	--	--	--	--
FEB												
26...	10	--	--	--	--	--	--	--	--	--	--	--
APR												
06...	10	--	--	--	--	--	--	--	--	--	--	--
MAY												
19...	20	--	--	--	--	--	--	--	--	--	--	122
JUL												
09...	20	--	--	--	--	--	--	--	--	--	--	--
AUG												
27...	50	320	.2	<.01	<1	<1	<1	20	27	<.01	13.0	1

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

TENNESSEE RIVER BASIN--CONTINUED

03522550 - FLATROCK CREEK NEAR DRILL, VA. (LAT 37 03 31 LONG 081 58 53)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
DEC , 1980 02...	0915	.36	740	8.0	11.0	10.8	--	--	--	--	--	--
JAN , 1981 13...	1030	--	758	7.1	4.0	--	--	--	--	--	--	--
FEB 23...	0930	2.7	790	7.2	6.5	12.6	--	--	--	--	--	--
APR 09...	1100	1.7	850	6.5	10.0	9.9	--	--	--	--	--	--
MAY 18...	1245	1.7	920	7.3	14.0	9.8	--	--	--	--	--	--
JUL 06...	0930	1.6	860	7.5	18.5	8.4	--	--	--	--	--	--
AUG 24...	0945	.51	850	8.0	17.0	8.9	450	320	98	50	10	3.8

03524010 - DUMPS CREEK NEAR S. CLINCHFIELD, VA. (LAT 36 58 16 LONG 082 11 35)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
DEC , 1980 02...	0945	.86	460	7.7	5.0	13.2	--	--	--	--	--	--
JAN , 1981 12...	1100	.18	546	7.3	.0	--	--	--	--	--	--	--
FEB 23...	1105	14	242	7.6	7.0	11.4	--	--	--	--	--	--
APR 06...	1100	16	217	6.7	8.5	11.4	--	--	--	--	--	--
MAY 18...	1100	2.2	408	8.6	18.0	9.0	--	--	--	--	--	--
JUL 06...	1045	2.5	444	8.4	21.0	8.2	--	--	--	--	--	--
AUG 24...	1015	.12	535	8.5	19.0	6.6	130	.00	34	11	64	2.7

03524030 - CHANEY CREEK NEAR S. CLINCHFIELD, VA. (LAT 36 57 08 LONG 082 12 45)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
DEC , 1980 02...	1030	.84	400	7.3	4.5	12.0	--	--	--	--	--	--
JAN , 1981 12...	1145	.15	490	7.2	.0	14.8	--	--	--	--	--	--
FEB 23...	1150	11	190	7.5	7.0	11.3	--	--	--	--	--	--
APR 06...	1145	14	148	6.8	9.0	10.8	--	--	--	--	--	--
MAY 18...	1150	2.1	425	8.6	18.0	9.2	--	--	--	--	--	--
JUL 06...	1135	1.9	426	8.5	21.5	8.5	--	--	--	--	--	--
AUG 24...	1105	.64	665	8.6	19.0	6.6	130	.00	28	14	90	2.5

03524050 - LICK CREEK AT ST. PAUL, VA. (LAT 36 54 28 LONG 082 17 59)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS)	SPECIFIC CONDUCTANCE (UMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	OXYGEN, DISSOLVED (MG/L)	HARDNESS (MG/L AS CACO3)	HARDNESS NONCARBONATE (MG/L AS CACO3)	CALCIUM DISSOLVED (MG/L AS CA)	MAGNESIUM, DISSOLVED (MG/L AS MG)	SODIUM, DISSOLVED (MG/L AS NA)	POTASSIUM, DISSOLVED (MG/L AS K)
DEC , 1980 02...	1115	8.1	410	7.7	4.5	11.9	--	--	--	--	--	--
JAN , 1981 12...	1255	2.1	612	8.2	.0	--	--	--	--	--	--	--
FEB 23...	1310	82	242	7.0	7.0	11.2	--	--	--	--	--	--
APR 06...	1300	68	192	7.1	10.0	11.2	--	--	--	--	--	--
MAY 18...	1315	9.2	425	9.2	20.0	12.3	--	--	--	--	--	--
JUL 06...	1300	20	326	8.6	22.0	8.7	--	--	--	--	--	--
AUG 24...	1250	2.3	520	9.1	23.0	8.8	190	64	48	18	37	3.3

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

TENNESSEE RIVER BASIN--CONTINUED

03522550 - FLATROCK CREEK NEAR DRILL, VA. (LAT 37 03 31 LONG 081 58 53)

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
DEC , 1980												
02...	140	250	--	--	--	542	--	--	--	--	--	--
JAN , 1981												
13...	148	260	--	--	--	539	--	--	--	--	--	--
FEB												
23...	81	320	--	--	--	567	--	--	--	--	--	--
APR												
09...	74	320	--	--	--	603	--	--	--	--	--	--
MAY												
18...	92	380	--	--	--	684	--	--	--	--	--	--
JUL												
06...	101	330	--	--	--	616	--	--	--	--	--	--
AUG												
24...	130	330	1.6	<.1	7.4	644	.36	.020	2	<1	100	2

03524010 - DUMPS CREEK NEAR S. CLINCHFIELD, VA. (LAT 36 58 16 LONG 082 11 35)

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
DEC , 1980												
02...	120	78	--	--	--	276	--	--	--	--	--	--
JAN , 1981												
12...	195	45	--	--	--	330	--	--	--	--	--	--
FEB												
23...	57	43	--	--	--	144	--	--	--	--	--	--
APR												
06...	48	45	--	--	--	142	--	--	--	--	--	--
MAY												
18...	99	91	--	--	--	246	--	--	--	--	--	--
JUL												
06...	124	85	--	--	--	257	--	--	--	--	--	--
AUG												
24...	150	110	5.5	.2	6.3	329	<.01	.010	2	<1	100	1

03524030 - CHANEY CREEK NEAR S. CLINCHFIELD, VA. (LAT 36 57 08 LONG 082 12 45)

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
DEC , 1980												
02...	89	84	--	--	--	239	--	--	--	--	--	--
JAN , 1981												
12...	109	110	--	--	--	303	--	--	--	--	--	--
FEB												
23...	35	48	--	--	--	111	--	--	--	--	--	--
APR												
06...	31	41	--	--	--	111	--	--	--	--	--	--
MAY												
18...	97	96	--	--	--	261	--	--	--	--	--	--
JUL												
06...	95	96	--	--	--	257	--	--	--	--	--	--
AUG												
24...	170	95	39	.3	6.4	388	<.01	.010	2	<1	100	1

03524050 - LICK CREEK AT ST. PAUL, VA. (LAT 36 54 28 LONG 082 17 59)

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
DEC , 1980												
02...	87	90	--	--	--	251	--	--	--	--	--	--
JAN , 1981												
12...	132	140	--	--	--	380	--	--	--	--	--	--
FEB												
23...	55	49	--	--	--	148	--	--	--	--	--	--
APR												
06...	37	41	--	--	--	120	--	--	--	--	--	--
MAY												
18...	94	100	--	--	--	260	--	--	--	--	--	--
JUL												
06...	77	69	--	--	--	201	--	--	--	--	--	--
AUG												
24...	130	110	12	.1	3.4	324	.12	.030	2	<1	100	1

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

TENNESSEE RIVER BASIN--CONTINUED

03522550 - FLATROCK CREEK NEAR DRILL, VA. (LAT 37 03 31 LONG 081 58 53)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	270	20	--	--	--	60
JAN , 1981 13...	--	--	--	--	--	--	100	110	--	--	--	40
FEB 23...	--	--	--	--	--	--	3100	30	--	--	--	130
APR 09...	--	--	--	--	--	--	4300	20	--	--	--	190
MAY 18...	--	--	--	--	--	--	280	20	--	--	--	30
JUL 06...	--	--	--	--	--	--	330	20	--	--	--	40
AUG 24...	<1	30	6	10	4	10	1200	20	11000	10	20	120

03524010 - DUMPS CREEK NEAR S. CLINCHFIELD, VA. (LAT 36 58 16 LONG 082 11 35)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	160	<10	--	--	--	20
JAN , 1981 12...	--	--	--	--	--	--	150	20	--	--	--	20
FEB 23...	--	--	--	--	--	--	1000	20	--	--	--	250
APR 06...	--	--	--	--	--	--	850	30	--	--	--	40
MAY 18...	--	--	--	--	--	--	200	100	--	--	--	10
JUL 06...	--	--	--	--	--	--	3000	60	--	--	--	70
AUG 24...	<1	10	8	<10	3	12	490	10	13000	10	20	30

03524030 - CHANEY CREEK NEAR S. CLINCHFIELD, VA. (LAT 36 57 08 LONG 082 12 45)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	160	30	--	--	--	30
JAN , 1981 12...	--	--	--	--	--	--	100	<10	--	--	--	20
FEB 23...	--	--	--	--	--	--	4000	10	--	--	--	80
APR 06...	--	--	--	--	--	--	550	40	--	--	--	20
MAY 18...	--	--	--	--	--	--	210	110	--	--	--	20
JUL 06...	--	--	--	--	--	--	520	40	--	--	--	30
AUG 24...	<1	20	2	<10	3	2	690	50	3700	19	<10	50

03524050 - LICK CREEK AT ST. PAUL, VA. (LAT 36 54 28 LONG 082 17 59)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	260	10	--	--	--	20
JAN , 1981 12...	--	--	--	--	--	--	200	10	--	--	--	30
FEB 23...	--	--	--	--	--	--	2800	10	--	--	--	100
APR 06...	--	--	--	--	--	--	370	30	--	--	--	40
MAY 18...	--	--	--	--	--	--	160	20	--	--	--	30
JUL 06...	--	--	--	--	--	--	930	60	--	--	--	50
AUG 24...	1	10	6	<10	3	9	200	20	10000	10	20	30

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
TENNESSEE RIVER BASIN--CONTINUED												
03522550 - FLATROCK CREEK NEAR DRILL, VA. (LAT 37 03 31 LONG 081 58 53)												
DEC , 1980 02...	30	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 13...	50	--	--	--	--	--	--	--	--	--	--	--
FEB 23...	40	--	--	--	--	--	--	--	--	--	--	--
APR 09...	50	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	30	--	--	--	--	--	--	--	--	--	--	10
JUL 06...	50	--	--	--	--	--	--	--	--	--	--	29
AUG 24...	30	740	<.1	<.01	<1	<1	<1	20	39	<.01	28.0	
03524010 - DUMPS CREEK NEAR S. CLINCHFIELD, VA. (LAT 36 58 16 LONG 082 11 35)												
DEC , 1980 02...	20	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 12...	10	--	--	--	--	--	--	--	--	--	--	--
FEB 23...	10	--	--	--	--	--	--	--	--	--	--	--
APR 06...	10	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	10	--	--	--	--	--	--	--	--	--	--	84
JUL 06...	20	--	--	--	--	--	--	--	--	--	--	10
AUG 24...	10	340	<.1	<.01	<1	<1	<1	<10	39	<.01	200	
03524030 - CHANEY CREEK NEAR S. CLINCHFIELD, VA. (LAT 36 57 08 LONG 082 12 45)												
DEC , 1980 02...	10	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 12...	10	--	--	--	--	--	--	--	--	--	--	--
FEB 23...	10	--	--	--	--	--	--	--	--	--	--	--
APR 06...	10	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	10	--	--	--	--	--	--	--	--	--	--	11
JUL 06...	20	--	--	--	--	--	--	--	--	--	--	4
AUG 24...	10	270	<.1	<.01	1	<1	<1	10	29	<.01	2.00	
03524050 - LICK CREEK AT ST. PAUL, VA. (LAT 36 54 28 LONG 082 17 59)												
DEC , 1980 02...	10	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 12...	10	--	--	--	--	--	--	--	--	--	--	--
FEB 23...	10	--	--	--	--	--	--	--	--	--	--	--
APR 06...	10	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	20	--	--	--	--	--	--	--	--	--	--	26
JUL 06...	30	--	--	--	--	--	--	--	--	--	--	5
AUG 24...	10	260	1.4	<.01	<1	<1	2	10	33	<.01	98.0	

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
TENNESSEE RIVER BASIN--CONTINUED												
03524346 - BEAR CREEK NEAR WISE, VA. (LAT 36 57 20 LONG 082 34 44)												
DEC , 1980 02...	1330	2.6	535	7.9	7.0	11.6	--	--	--	--	--	--
JAN , 1981 12...	1610	1.3	586	7.7	.0	14.4	--	--	--	--	--	--
FEB 25...	1025	10	501	6.8	4.0	11.9	--	--	--	--	--	--
APR 08...	0845	8.7	469	7.8	8.0	11.8	--	--	--	--	--	--
MAY 20...	1205	9.4	495	7.8	12.0	9.4	--	--	--	--	--	--
JUL 08...	1105	6.6	653	8.0	19.5	8.9	--	--	--	--	--	--
AUG 26...	1035	3.5	820	8.3	15.5	9.3	410	330	88	47	5.5	4.8
03524348 - YELLOW CREEK NEAR WISE, VA. (LAT 36 57 28 LONG 082 34 50)												
DEC , 1980 02...	1415	1.5	660	7.4	7.0	10.4	--	--	--	--	--	--
JAN , 1981 12...	1530	.27	688	7.4	.0	13.8	--	--	--	--	--	--
FEB 25...	1105	4.2	368	6.8	4.0	11.8	--	--	--	--	--	--
APR 08...	0815	4.9	336	7.8	7.5	10.8	--	--	--	--	--	--
MAY 20...	1300	3.7	390	7.9	12.0	8.5	--	--	--	--	--	--
JUL 08...	1025	4.3	362	7.6	19.5	8.4	--	--	--	--	--	--
AUG 26...	1145	1.2	1000	8.2	16.5	8.0	530	420	120	55	8.5	5.9
03529310 - ROARING FORK AT DUNBAR, VA. (LAT 36 58 22 LONG 082 44 05)												
DEC , 1980 03...	0815	3.3	440	6.6	2.0	13.9	--	--	--	--	--	--
JAN , 1981 13...	0810	1.8	530	7.7	.0	13.6	--	--	--	--	--	--
FEB 25...	0845	16	343	6.7	2.0	13.0	--	--	--	--	--	--
APR 07...	1545	23	--	7.9	12.0	10.4	--	--	--	--	--	--
MAY 20...	1020	17	270	7.9	11.5	9.6	--	--	--	--	--	--
JUL 08...	0850	6.6	498	8.2	19.0	8.9	--	--	--	--	--	--
AUG 26...	0845	5.3	555	8.6	14.5	9.2	150	2.0	36	15	57	3.0
03529450 - LOONEY CREEK AT APPALACHIA, VA. (LAT 36 53 50 LONG 082 47 30)												
DEC , 1980 03...	0915	2.3	540	7.7	4.0	--	--	--	--	--	--	--
JAN , 1981 13...	0920	2.5	709	8.2	2.0	13.3	--	--	--	--	--	--
FEB 25...	0745	14	323	6.8	4.0	12.0	--	--	--	--	--	--
APR 07...	1645	23	--	8.2	13.5	9.4	--	--	--	--	--	--
MAY 20...	0910	12	380	8.2	13.0	9.1	--	--	--	--	--	--
JUL 08...	0735	7.1	515	8.2	17.5	9.0	--	--	--	--	--	--
AUG 26...	0745	5.0	630	8.5	14.0	9.4	130	.00	31	13	94	3.1

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	ALKALINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLORIDE, DIS-SOLVED (MG/L AS CL)	FLUORIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N)	PHOSPHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOTTOM MATERIAL (UG/G AS AS)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD)
TENNESSEE RIVER BASIN--CONTINUED												
03524346 - BEAR CREEK NEAR WISE, VA. (LAT 36 57 20 LONG 082 34 44)												
DEC , 1980 02...	63	180	--	--	--	353	--	--	--	--	--	--
JAN , 1981 12...	81	200	--	--	--	394	--	--	--	--	--	--
FEB 25...	53	170	--	--	--	322	--	--	--	--	--	--
APR 08...	62	170	--	--	--	341	--	--	--	--	--	--
MAY 20...	54	170	--	--	--	340	--	--	--	--	--	--
JUL 08...	79	200	--	--	--	472	--	--	--	--	--	--
AUG 26...	82	300	3.1	.1	6.1	608	6.3	.020	1	<1	100	2
03524348 - YELLOW CREEK NEAR WISE, VA. (LAT 36 57 28 LONG 082 34 50)												
DEC , 1980 02...	84	190	--	--	--	434	--	--	--	--	--	--
JAN , 1981 12...	91	230	--	--	--	473	--	--	--	--	--	--
FEB 25...	42	99	--	--	--	224	--	--	--	--	--	--
APR 08...	45	110	--	--	--	230	--	--	--	--	--	--
MAY 20...	54	110	--	--	--	266	--	--	--	--	--	--
JUL 08...	59	87	--	--	--	235	--	--	--	--	--	--
AUG 26...	110	400	6.3	.1	6.1	750	4.7	.030	1	<1	100	2
03529310 - ROARING FORK AT DUNBAR, VA. (LAT 36 58 22 LONG 082 44 05)												
DEC , 1980 03...	142	84	--	--	--	270	--	--	--	--	--	--
JAN , 1981 13...	181	88	--	--	--	331	--	--	--	--	--	--
FEB 25...	67	89	--	--	--	211	--	--	--	--	--	--
APR 07...	63	78	--	--	--	203	--	--	--	--	--	--
MAY 20...	48	69	--	--	--	173	--	--	--	--	--	--
JUL 08...	135	100	--	--	--	302	--	--	--	--	--	--
AUG 26...	150	120	1.7	.2	5.0	341	.60	.020	1	<1	100	1
03529450 - LOONEY CREEK AT APPALACHIA, VA. (LAT 36 53 50 LONG 082 47 30)												
DEC , 1980 03...	217	48	--	--	--	325	--	--	--	--	--	--
JAN , 1981 13...	309	60	--	--	--	437	--	--	--	--	--	--
FEB 25...	118	37	--	--	--	190	--	--	--	--	--	--
APR 07...	12	39	--	--	--	196	--	--	--	--	--	--
MAY 20...	132	46	--	--	--	226	--	--	--	--	--	--
JUL 08...	204	41	--	--	--	309	--	--	--	--	--	--
AUG 26...	280	41	3.9	.3	4.9	432	.04	.020	1	<1	100	1

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

TENNESSEE RIVER BASIN--CONTINUED

03524346 - BEAR CREEK NEAR WISE, VA. (LAT 36 57 20 LONG 082 34 44)

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	290	10	--	--	--	320
JAN , 1981 12...	--	--	--	--	--	--	240	10	--	--	--	270
FEB 25...	--	--	--	--	--	--	500	10	--	--	--	660
APR 08...	--	--	--	--	--	--	780	20	--	--	--	470
MAY 20...	--	--	--	--	--	--	1200	30	--	--	--	430
JUL 08...	--	--	--	--	--	--	1300	30	--	--	--	200
AUG 26...	<1	10	6	20	3	11	550	30	13000	10	10	200

03524348 - YELLOW CREEK NEAR WISE, VA. (LAT 36 57 28 LONG 082 34 50)

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
DEC , 1980 02...	--	--	--	--	--	--	340	30	--	--	--	150
JAN , 1981 12...	--	--	--	--	--	--	170	60	--	--	--	80
FEB 25...	--	--	--	--	--	--	370	40	--	--	--	330
APR 08...	--	--	--	--	--	--	620	30	--	--	--	200
MAY 20...	--	--	--	--	--	--	950	30	--	--	--	160
JUL 08...	--	--	--	--	--	--	800	40	--	--	--	90
AUG 26...	<1	10	6	10	3	5	220	20	9000	11	10	40

03529310 - ROARING FORK AT DUNBAR, VA. (LAT 36 58 22 LONG 082 44 05)

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
DEC , 1980 03...	--	--	--	--	--	--	240	10	--	--	--	330
JAN , 1981 13...	--	--	--	--	--	--	430	60	--	--	--	300
FEB 25...	--	--	--	--	--	--	620	40	--	--	--	270
APR 07...	--	--	--	--	--	--	470	70	--	--	--	140
MAY 20...	--	--	--	--	--	--	1600	20	--	--	--	160
JUL 08...	--	--	--	--	--	--	570	10	--	--	--	160
AUG 26...	<1	10	6	10	2	12	300	20	14000	12	10	130

03529450 - LOONEY CREEK AT APPALACHIA, VA. (LAT 36 53 50 LONG 082 47 30)

DATE	CADMIUM RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CD)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR)	CHRO-MIUM, RECOV. FM BOT-TOM MA-TERIAL (UG/G)	COBALT, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CO)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU)	COPPER, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS CU)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	IRON, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS FE)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB)	LEAD, RECOV. FM BOT-TOM MA-TERIAL (UG/G AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)
DEC , 1980 03...	--	--	--	--	--	--	460	30	--	--	--	90
JAN , 1981 13...	--	--	--	--	--	--	480	200	--	--	--	80
FEB 25...	--	--	--	--	--	--	250	90	--	--	--	60
APR 07...	--	--	--	--	--	--	710	30	--	--	--	70
MAY 20...	--	--	--	--	--	--	990	50	--	--	--	80
JUL 08...	--	--	--	--	--	--	1200	40	--	--	--	110
AUG 26...	1	10	6	<10	4	14	510	30	8600	17	10	60

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

TENNESSEE RIVER BASIN--CONTINUED

03524346 - BEAR CREEK NEAR WISE, VA. (LAT 36 57 20 LONG 082 34 44)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
DEC , 1980 02...	330	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 12...	270	--	--	--	--	--	--	--	--	--	--	--
FEB 25...	590	--	--	--	--	--	--	--	--	--	--	--
APR 08...	360	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	330	--	--	--	--	--	--	--	--	--	--	--
JUL 08...	90	--	--	--	--	--	--	--	--	--	--	27
AUG 26...	140	950	.1	<.01	5	<1	1	10	38	<.01	9.00	15

03524348 - YELLOW CREEK NEAR WISE, VA. (LAT 36 57 28 LONG 082 34 50)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
DEC , 1980 02...	160	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 12...	70	--	--	--	--	--	--	--	--	--	--	--
FEB 25...	320	--	--	--	--	--	--	--	--	--	--	--
APR 08...	170	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	110	--	--	--	--	--	--	--	--	--	--	--
JUL 08...	40	--	--	--	--	--	--	--	--	--	--	22
AUG 26...	40	370	<.1	<.01	6	<1	<1	10	36	<.01	8.00	5

03529310 - ROARING FORK AT DUNBAR, VA. (LAT 36 58 22 LONG 082 44 05)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
DEC , 1980 03...	340	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 13...	300	--	--	--	--	--	--	--	--	--	--	--
FEB 25...	260	--	--	--	--	--	--	--	--	--	--	--
APR 07...	120	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	110	--	--	--	--	--	--	--	--	--	--	--
JUL 08...	150	--	--	--	--	--	--	--	--	--	--	11
AUG 26...	150	610	.5	<.01	1	<1	<1	10	37	<.01	48.0	25

03529450 - LOONEY CREEK AT APPALACHIA, VA. (LAT 36 53 50 LONG 082 47 30)

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
DEC , 1980 03...	80	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 13...	70	--	--	--	--	--	--	--	--	--	--	--
FEB 25...	20	--	--	--	--	--	--	--	--	--	--	--
APR 07...	30	--	--	--	--	--	--	--	--	--	--	--
MAY 20...	40	--	--	--	--	--	--	--	--	--	--	--
JUL 08...	50	--	--	--	--	--	--	--	--	--	--	32
AUG 26...	40	260	<.1	<.01	<1	<1	<1	20	35	<.01	39.0	40

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

TENNESSEE RIVER BASIN--CONTINUED

03530440 - STRAIGHT CREEK AT ST. CHARLES,VA. (LAT 36 48 21 LONG 083 03 21)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS)	SPE-CIFIC CON-DUCT-ANCE (UMHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	OXYGEN, DIS-SOLVED (MG/L)	HARD-NESS (MG/L AS CACO3)	HARD-NESS NONCAR-BONATE (MG/L AS CACO3)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)
DEC , 1980												
03...	1100	.56	480	7.1	2.0	--	--	--	--	--	--	--
JAN , 1981												
13...	1255	.33	520	7.4	.0	12.2	--	--	--	--	--	--
FEB												
24...	1415	15	273	7.5	7.0	11.1	--	--	--	--	--	--
APR												
07...	1230	13	235	7.3	13.0	10.6	--	--	--	--	--	--
MAY												
19...	1455	32	285	7.9	16.0	9.7	--	--	--	--	--	--
JUL												
07...	1330	8.0	347	8.1	23.0	8.5	--	--	--	--	--	--
AUG												
25...	1440	.69	465	8.5	27.5	9.1	160	73	38	15	31	3.1

DATE	ALKA-LINITY LAB (MG/L AS CACO3)	SULFATE DIS-SOLVED (MG/L AS SO4)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ARSENIC TOTAL (UG/L AS AS)	ARSENIC TOTAL IN BOT-TOM MA-TERIAL (UG/G AS AS)	BARIUM, TOTAL RECOV-ERABLE (UG/L AS BA)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD)
DEC , 1980												
03...	80	140	--	--	--	303	--	--	--	--	--	--
JAN , 1981												
13...	95	140	--	--	--	333	--	--	--	--	--	--
FEB												
24...	37	81	--	--	--	173	--	--	--	--	--	--
APR												
07...	34	79	--	--	--	170	--	--	--	--	--	--
MAY												
19...	54	72	--	--	--	188	--	--	--	--	--	--
JUL												
07...	64	89	--	--	--	202	--	--	--	--	--	--
AUG												
25...	84	130	4.5	.2	3.3	291	.08	.030	2	<1	100	1

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)

TENNESSEE RIVER BASIN--CONTINUED

03530440 - STRAIGHT CREEK AT ST. CHARLES,VA. (LAT 36 48 21 LONG 083 03 21)

DATE	CADMIUM RECOV. FM BOTTOM MATERIAL (UG/G AS CD)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)	CHROMIUM, RECOV. FM BOTTOM MATERIAL (UG/G)	COBALT, RECOV. FM BOTTOM MATERIAL (UG/G AS CO)	COPPER, TOTAL RECOVERABLE (UG/L AS CU)	COPPER, RECOV. FM BOTTOM MATERIAL (UG/G AS CU)	IRON, TOTAL RECOVERABLE (UG/L AS FE)	IRON, DISSOLVED (UG/L AS FE)	IRON, RECOV. FM BOTTOM MATERIAL (UG/G AS FE)	LEAD, TOTAL RECOVERABLE (UG/L AS PB)	LEAD, RECOV. FM BOTTOM MATERIAL (UG/G AS PB)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
DEC , 1980 03...	--	--	--	--	--	--	670	360	--	--	--	390
JAN , 1981 13...	--	--	--	--	--	--	940	690	--	--	--	450
FEB 24...	--	--	--	--	--	--	1100	10	--	--	--	170
APR 07...	--	--	--	--	--	--	510	60	--	--	--	220
MAY 19...	--	--	--	--	--	--	4400	20	--	--	--	220
JUL 07...	--	--	--	--	--	--	770	20	--	--	--	150
AUG 25...	1	10	10	20	5	32	1300	20	22000	14	30	180

DATE	MANGANESE, DISSOLVED (UG/L AS MN)	MANGANESE, RECOV. FM BOTTOM MATERIAL (UG/G)	MERCURY TOTAL RECOVERABLE (UG/L AS HG)	MERCURY RECOV. FM BOTTOM MATERIAL (UG/G AS HG)	SELENIUM, TOTAL (UG/L AS SE)	SELENIUM, TOTAL IN BOTTOM MATERIAL (UG/G)	SILVER, TOTAL RECOVERABLE (UG/L AS AG)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)	ZINC, RECOV. FM BOTTOM MATERIAL (UG/G AS ZN)	CYANIDE TOTAL (MG/L AS CN)	COAL IN BOTTOM MATERIAL (GM/KG)	SEDIMENT, SUSPENDED (MG/L)
DEC , 1980 03...	410	--	--	--	--	--	--	--	--	--	--	--
JAN , 1981 13...	450	--	--	--	--	--	--	--	--	--	--	--
FEB 24...	140	--	--	--	--	--	--	--	--	--	--	--
APR 07...	200	--	--	--	--	--	--	--	--	--	--	--
MAY 19...	90	--	--	--	--	--	--	--	--	--	--	--
JUL 07...	130	--	--	--	--	--	--	--	--	--	--	21
AUG 25...	190	590	<.1	<.01	<1	<1	<1	30	121	<.01	190	17

< Less than.

ACCOMACK COUNTY

375600075280002. Local number, 67M2.
LOCATION.--Lat 37°56'23", long 75°28'02", Hydrologic Unit 02060010, Wallops Flight Center well B31. Owner: National Aeronautics and Space Administration (formerly U.S. Naval Air Station, Wallops Island).
AQUIFER.--Columbia group sand of Pleistocene age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in (200 mm), depth 60 ft (18.3 m), screen depth unknown.
DATUM.--Altitude of land-surface datum is 35 ft (11 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.38 ft (0.42 m) above land-surface datum. Measuring point reported as 6.09 ft (1.86 m) above land-surface datum from 1963 to 1975. All water levels prior to 1975 should be 4.71 ft (1.44 m) lower than shown.
REMARKS.--Records furnished by the National Aeronautics and Space Administration.
PERIOD OF RECORD.--May 1963 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.82 ft (6.35 m) below land-surface datum, July 2, 1979; lowest measured, 24.70 ft (7.53 m) below land-surface datum, Sept. 9, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	21.52	JAN 6	23.82	APR 1	24.32	JUL 1	24.42
NOV 3	23.32	FEB 4	24.22	MAY 1	24.32	SEP 1	24.52
DEC 4	23.72	MAR 2	24.32	JUN 1	24.32		

ALBEMARLE COUNTY

380333078264801. Local number, 43N1.
LOCATION.--Lat 38°03'33", long 78°26'48", Hydrologic Unit 02080204, at Key West Subdivision, Charlottesville. Owner: Key West Development Corporation.
AQUIFER.--Lynchburg formation of Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 409 ft (124.7 m), cased to 52 ft (15.8 m), open hole 52 to 409 ft (15.8 to 124.7 m).
DATUM.--Altitude of land-surface datum is 335 ft (102 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.3 ft (0.1 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 28.
PERIOD OF RECORD.--February 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.58 ft (3.53 m) below land-surface datum, May 31, 1971; lowest measured, 21.11 ft (6.43 m) below land-surface datum, May 21, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 9	20.95	APR 10	20.68	JUL 13	20.36
FEB 23	20.43	MAY 21	21.11	AUG 28	20.92

APPOMATTOX COUNTY

372133078493701. Local number, 40G1.
LOCATION.--Lat 37°21'33", long 78°49'37", Hydrologic Unit 02080207, in the town of Appomattox. Owner: Town of Appomattox.
AQUIFER.--Metamorphic rock of uncertain age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in (200 mm), depth 288 ft (87.8 m), cased to 40 ft (12.2 m), open hole 40 to 288 ft (12.2 to 87.8 m).
DATUM.--Altitude of land-surface datum is 860 ft (262 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1 ft (0.3 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 12.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 34.78 ft (10.60 m) below land-surface datum, June 13, 1973; lowest measured, 56.46 ft (17.21 m) below land-surface datum, Aug. 27, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 7	49.21	APR 9	54.98	JUL 7	52.87
FEB 20	49.86	MAY 20	52.30	AUG 27	56.46

372514078394301. Local number, 41H2.
LOCATION.--Lat 37°25'14", long 78°39'43", Hydrologic Unit 02080207, 1 mi (1.6 km) south of intersection of State Highway 636 on the east side of State Highway 640. Owner: U.S. Geological Survey.
AQUIFER.--Candler formation of Paleozoic age.
WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in (80 mm) to 68 ft (20.7 m), 1.25 in (32 mm) 68 to 73 ft (20.7 to 22.3 m), depth 73 ft (22.3 m), screened 68 to 73 ft (20.7 to 22.3 m).
DATUM.--Altitude of land-surface datum is 640 ft (195 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing 1.5 ft (0.5 m) above land-surface datum.
PERIOD OF RECORD.--October 1977 to current year. Unpublished records available March 1971 through September 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.99 ft (10.06 m) below land-surface datum, May 20, 1973; lowest measured, 49.41 ft (15.06 m) below land-surface datum, Mar. 30, 1971.

APPOMATTOX COUNTY--Continued

372514078394301--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	41.45	JAN 6	44.19	APR 13	46.22	JUL 24	47.70
DEC 8	43.32	FEB 17	45.42	JUN 15	47.15	SEP 16	48.38

372608078404601. Local number, 41H3.
LOCATION.--Lat 37°26'08", long 78°40'46", Hydrologic Unit 02080207, 0.85 mi (1.4 km) west of Ranger Headquarters on south side of dirt road off of State Highway 636. Owner: U.S. Geological Survey.
AQUIFER.--Candler formation of Paleozoic age.
WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in (80 mm) to 49 ft (14.9 m), 1.25 in (32 mm) 49 to 54 ft (14.9 to 16.5 m), depth 54 ft (16.5 m), screened 49 to 54 ft (14.9 to 16.5 m).
DATUM.--Land-surface datum is 683.8 ft (208.4 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.3 ft (0.4 m) above land-surface datum.
PERIOD OF RECORD.--October 1977 to current year. Unpublished records available March 1971 through September 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.31 ft (2.23 m) below land-surface datum, Apr. 12, 1973; lowest measured, 28.30 ft (8.62 m) below land-surface datum, Oct. 17, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	19.95	JAN 6	24.16	APR 13	25.37	JUL 24	26.43
DEC 8	23.15	FEB 17	25.22	JUN 15	25.95	SEP 16	27.16

ARLINGTON COUNTY

385346077073701. Local number, 53V1.
LOCATION.--Lat 38°53'34", long 77°07'37", Hydrologic Unit 02070010, at Langston School, 4854 Lee Highway, Arlington. Owner: Arlington County School Board.
AQUIFER.--Brandywine formation of Pleistocene age and Bryn Mawr (?) gravel of Pliocene (?) age, overlying the Sykesville formation of Precambrian age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in (600 mm), depth 35 ft (10.7 m).
DATUM.--Altitude of land-surface datum is 410 ft (125 m) National Geodetic Vertical Datum of 1929. Measuring point: Inner flange of manhole at land-surface datum.
PERIOD OF RECORD.--October 1931 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 17.74 ft (5.41 m) below land-surface datum, Apr. 20, 1935; lowest measured, 34.80 ft (10.61 m) below land-surface datum, Jan. 4, 1932.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	26.98	FEB 24	29.87	AUG 25	30.09
DEC 29	28.70	MAY 26	30.12		

385253077042301. Local number, 54V3.
LOCATION.--Lat 38°52'53", long 77°04'23", Hydrologic Unit 02070010, at Arlington National Cemetery. Owner: U.S. Department of Defense.
AQUIFER.--Terrace gravels of Holocene age and sand of Early Cretaceous age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 48 in (1,200 mm), depth 50 ft (15.2 m).
DATUM.--Altitude of land-surface datum is 205 ft (62 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of brick and stone casing, 3 ft (0.9 m) above land-surface datum.
PERIOD OF RECORD.--January 1958 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 40.34 ft (12.30 m) below land-surface datum, June 26, 1978; lowest measured, 44.90 ft (13.69 m) below land-surface datum, Mar. 4, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	43.09	FEB 24	43.83	AUG 25	43.70
DEC 29	43.49	MAY 26	44.49		

BUCKINGHAM COUNTY

372541078392101. Local number, 41H1.
LOCATION.--Lat 37°25'41", long 78°39'21", Hydrologic Unit 02080207, 0.45 mi (0.72 km) southeast of State Highway 636. Owner: U.S. Geological Survey.
AQUIFER.--Candler formation of Paleozoic age.
WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in (80 mm) to 83 ft (25.3 m), 1.25 in (32 mm) 83 to 88 ft (25.3 to 26.8 m), depth 88 ft (26.8 m), screened 83 to 88 ft (25.3 to 26.8 m).
DATUM.--Altitude of land-surface datum is 660 ft (201 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.20 ft (0.37 m) above land-surface datum.
PERIOD OF RECORD.--October 1977 to current year. Unpublished records available March 1971 through September 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 30.95 ft (9.43 m) below land-surface datum, May 20, 1973; lowest measured, 49.57 ft (15.11 m) below land-surface datum, Sept. 16, 1981.

BUCKINGHAM COUNTY--Continued

372541078392101--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATJM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	43.54	JAN 6	46.84	APR 13	48.41	JUL 24	49.01
DEC 8	45.98	FEB 17	47.76	JUN 15	48.68	SEP 16	49.57

372519078374001. Local number, 41H4.
LOCATION.--Lat 37°25'19", long 78°37'40", Hydrologic Unit 02080207, 0.65 mi (1.0 km) northeast of Holiday Creek and 0.85 mi (1.4 km) southeast of State Highway 636 on State Highway 614. Owner: U.S. Geological Survey.
AQUIFER.--Candler formation of Paleozoic age.
WELL CHARACTERISTICS.--Augered observation water well, diameter 3 in (80 mm) to 72 ft (22 m), 1.25 in (32 mm) 72 to 77 ft (22.0 to 23.5 m), depth 77 ft (23.5 m), screened 72 to 77 ft (22.0 to 23.5 m).
DATUM.--Altitude of land-surface datum is 647 ft (197 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.4 ft (0.43 m) above land-surface datum.
PERIOD OF RECORD.--October 1977 to current year. Unpublished records available March 1971 through September 1977.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 28.45 ft (8.67 m) below land-surface datum, May 1, 1980; lowest measured, 44.29 ft (13.50 m) below land-surface datum, Oct. 20, 21, 1971.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	36.77	JAN 6	38.81	APR 13	39.19	JUL 24	40.51
DEC 8	38.10	FEB 17	39.38	JUN 15	39.57	SEP 16	41.55

CITY OF COLONIAL HEIGHTS

371644077244601. Local number, 51G1.
LOCATION.--Lat 37°16'44", long 77°24'46", Hydrologic Unit 02080207, at Matoaka Manor, Colonial Heights. Owner: Kenneth Daul.
AQUIFER.--Petersburg granite of Late Paleozoic age.
WELL CHARACTERISTICS.--Drilled water well, diameter 6 in (150 mm), depth 100 ft (30.5 m), cased to 50 ft (15.2 m), open hole 50 to 100 ft (15.2 to 30.5 m).
DATUM.--Altitude of land-surface datum is 57.30 ft (17.47 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1 ft (0.3 m) above land-surface datum.
PERIOD OF RECORD.--October 1939 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.73 ft (3.27 m) below land-surface datum, Jan. 26, 1978; lowest measured, 19.09 ft (5.82 m) below land-surface datum, Jan. 14, 1942.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	16.37	DEC 31	16.64	FEB 25	17.18	APR 28	17.25	JUN 26	15.83	AUG 27	16.70
NOV 25	16.25	JAN 28	16.96	MAR 27	17.24	MAY 27	16.89	JUL 29	16.09	SEP 30	17.28

FAIRFAX COUNTY

384518077163501. Local number, 52U4.
LOCATION.--Lat 38°45'18", long 77°16'35", Hydrologic Unit 02070010, east of intersection of State Highways 641 and 643, Springfield. Owner: Sydenstricker Church.
AQUIFER.--Granite of undetermined age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in (600 mm), depth 28 ft (8.5 m).
DATUM.--Altitude of land-surface datum is 340 ft (104 m) National Geodetic Vertical Datum of 1929. Measuring point: Hole in cement platform, 0.67 ft (0.20 m) above land-surface datum.
PERIOD OF RECORD.--May 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.54 ft (3.82 m) below land-surface datum, Apr. 30, 1973; lowest measured, 27.57 ft (8.40 m) below land-surface datum, Nov. 30, 1964.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 28	22.45	JAN 29	24.19	APR 27	23.53	JUL 26	23.95
NOV 24	23.16	FEB 24	23.31	MAY 26	22.81	AUG 27	24.73
DEC 29	23.78	MAR 30	24.31	JUN 25	22.79	SEP 28	25.24

385638077220101. Local number, 52V2.
LOCATION.--Lat 38°56'58", long 77°22'01", Hydrologic Unit 02070008, at U.S. Geological Survey, National Center, Reston. Owner: U.S. Geological Survey.
AQUIFER.--Manassas sandstone of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 8 in (200 mm), depth 205 ft (62 m), cased to 35 ft (11 m), open hole 35 to 205 ft (11 to 62 m).
DATUM.--Altitude of land-surface datum is 390 ft (119 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft (0.6 m) above land-surface datum.
PERIOD OF RECORD.--October 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 7.48 ft (2.28 m) below land-surface datum, Apr. 30, May 1, 1980; lowest, 17.30 ft (5.27 m) below land-surface datum, Oct. 24, 1980.

FAIRFAX COUNTY--Continued

385638077220101--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	16.76	16.94	16.13	16.03	15.63	13.70	13.54	10.43	11.47	12.52	13.97	-
10	16.90	16.90	16.03	16.02	15.55	13.52	13.42	11.05	11.90	12.70	14.27	15.06
15	17.05	16.88	16.02	15.98	15.05	13.55	-	10.95	12.08	13.11	14.25	15.27
20	17.15	16.63	16.17	16.03	14.83	13.52	-	11.47	12.32	13.35	14.34	15.20
25	17.26	16.40	16.02	15.94	13.72	13.69	-	11.78	12.24	13.71	14.68	15.38
EOM	17.01	16.03	15.95	16.02	13.67	13.67	14.20	12.07	12.73	13.75	14.90	15.58

WTR YR 1981 HIGHEST 10.43 MAY 5, 1981 LOWEST 17.30 OCT 24, 1980

384532077054801. Local number, 54U40.
LOCATION.--Lat 38°45'32", long 77°05'48", Hydrologic Unit 02070010, at Huntley Meadows Park, west of U.S. Highway 1 and south of Alexandria. Owner: Fairfax County Park Authority.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 299 ft (91.1 m), screened 294 to 299 ft (89.6 to 91.1 m).
DATUM.--Altitude of land-surface datum is 50 ft (15 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of 2 in (50 mm) casing, 1.0 ft (0.30 m) above land-surface datum.
PERIOD OF RECORD.--May 1977 to February 1981.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 155.71 ft (47.46 m) below land-surface datum, July 30, 1979; lowest measured, 164.82 ft (50.24 m) below land-surface datum, Sept. 7, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 24	160.98	DEC 31	159.50	FEB 24	162.39

CITY OF FRANKLIN

364047076552401. Local number, 55B22.
LOCATION.--Lat 36°40'47", long 76°55'24", Hydrologic Unit 03010202, at 5th Avenue and Middle Street, Franklin. Owner: City of Franklin.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Jetted observation water well, diameter 4 in (100 mm), depth 354 ft (107.9 m), screened 335 to 354 ft (102.1 to 107.9 m).
DATUM.--Altitude of land-surface datum is 21.24 ft (6.47 m) National Geodetic Vertical Datum of 1929. Measuring point: Top edge of manhole at land-surface datum.
REMARKS.--Water level affected by local pumpage.
PERIOD OF RECORD.--June 1942 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.50 ft (4.42 m) below land-surface datum, June 25, 1942; lowest measured, 190.01 ft (57.92 m) below land-surface datum, June 12, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	180.48	JAN 16	180.57	APR 13	184.25	JUL 14	186.57
NOV 17	179.45	FEB 13	183.15	MAY 13	185.25	AUG 14	184.20
DEC 17	180.12	MAR 13	183.34	JUN 12	190.01	SEP 15	183.86

HALIFAX COUNTY

364550078562301. Local number, 39C1.
LOCATION.--Lat 36°45'50", long 78°56'23", Hydrologic Unit 03010105, in the town of Halifax. Owner: Town of Halifax.
AQUIFER.--Granite and gneiss of uncertain age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 8 in (200 mm), depth 303 ft (92.4 m), cased to 52 ft (15.8 m), open hole 52 to 303 ft (15.8 to 92.4 m).
DATUM.--Altitude of land-surface datum is 380 ft (116 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.20 ft (0.37 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 11.
PERIOD OF RECORD.--October 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 36.28 ft (11.06 m) below land-surface datum, June 8, 1980; lowest, 45.09 ft (13.74 m) below land-surface datum, Dec. 30, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 7	38.29	APR 8	39.23	JUL 9	39.96
FEB 19	38.71	MAY 19	39.57	AUG 26	40.50

CITY OF HOPEWELL

371801077164201. Local number, 52G1.
LOCATION.--Lat 37°18'01", long 77°16'42", Hydrologic Unit 02080206, in the city of Hopewell. Owner: Virginia American Water Corporation.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 300 ft (91.4 m), screen depth unknown.
DATUM.--Altitude of land-surface datum is 50.26 ft (15.32 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.34 ft (0.10 m) above land-surface datum.
PERIOD OF RECORD.--May 1939 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.56 ft (6.27 m) below land-surface datum, Sept. 7, 1979; lowest measured, 56.95 ft (17.36 m) below land-surface datum, Aug. 14, 1943.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 3	34.13	DEC 5	34.66	FEB 6	34.86	APR 10	35.19	JUN 12	33.26	AUG 14	35.18
10	34.24	12	34.65	13	34.70	17	35.11	19	34.93	21	35.20
17	34.35	19	34.66	20	34.48	24	34.84	26	35.01	28	35.20
24	34.57	26	34.69	26	34.12	MAY 1	34.92	JUL 3	35.05	SEP 4	35.09
31	34.40	JAN 2	34.75	MAR 6	34.46	8	34.99	10	35.10	11	35.19
NOV 7	34.50	9	34.79	13	34.33	15	34.86	17	35.14	18	35.07
14	34.56	16	34.81	20	34.67	22	34.90	24	35.20	25	35.21
21	34.65	23	34.83	27	34.85		-	31	35.16		
28	33.61	30	34.86	APR 3	35.03	JUN 5	34.28	AUG 7	35.20		

ISLE OF WIGHT COUNTY

364059076544901. Local number, 55B16.
LOCATION.--Lat 36°40'59", long 76°54'49", Hydrologic Unit 03010202, at lumberyard well, near Franklin. Owner: Union Camp Corporation.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 305 ft (93.0 m), screened 285 to 305 ft (86.9 to 93.0 m).
DATUM.--Altitude of land-surface datum is 25 ft (8 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.45 ft (0.10 m) above land-surface datum.
REMARKS.--Water level affected by local pumpage.
PERIOD OF RECORD.--June 1960 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 99.00 ft (30.18 m) below land-surface datum, Dec. 27, 1960; lowest, 195.67 ft (59.64 m) below land-surface datum, June 14, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	188.32	187.15	188.17	187.43	190.21	190.54	191.51	192.76	193.51	-	194.51	192.05
10	188.28	187.24	187.43	188.13	190.38	190.64	191.68	192.72	194.77	193.36	193.84	190.28
15	188.50	187.01	187.89	188.35	190.66	191.07	191.72	192.62	195.62	193.78	191.87	190.27
20	188.24	187.40	187.85	188.75	190.75	190.42	191.83	192.70	193.39	195.15	192.00	190.29
25	188.29	187.49	187.45	189.10	190.75	190.69	192.22	192.69	193.80	195.07	192.39	190.85
EOM	187.83	187.86	185.55	189.16	190.43	191.24	192.43	193.04	193.33	194.47	192.98	190.36

WTR YR 1981 HIGHEST 183.36 DEC 28, 1980 LOWEST 195.67 JUN 14, 1981

364116076545001. Local number, 55B35.
LOCATION.--Lat 36°41'16", long 76°54'50", Hydrologic Unit 03010202, near Franklin. Owner: Union Camp Corporation.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in (100 mm), depth 628 ft (191.4 m), screened 430 to 435 ft (131.1 to 132.6 m), 475 to 480 ft (144.8 to 146.3 m), 580 to 585 ft (176.8 to 178.3 m), 618 to 623 ft (188.3 to 189.9 m).
DATUM.--Altitude of land-surface datum is 32 ft (10 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2 ft (0.61 m) above land-surface datum.
REMARKS.--Water level affected by local pumpage.
PERIOD OF RECORD.--February 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 154.99 ft (47.24 m) below land-surface datum, Aug. 23, 1974; lowest measured, 214.15 ft (65.27 m) below land-surface datum, June 12, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	204.78	JAN 16	205.59	APR 13	210.89	JUL 14	213.11
NOV 17	204.72	FEB 13	209.66	MAY 13	212.02	AUG 14	210.29
DEC 17	205.71	MAR 25	209.89	JUN 12	214.15	SEP 15	208.88

ISLE OF WIGHT COUNTY--Continued

364125076544801. Local number, 55B36.
LOCATION.--Lat 36°41'25", long 76°54'48", Hydrologic Unit 03010202, near Franklin. Owner: Union Camp Corporation.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in (100 mm), depth 860 ft (262.1 m), screened 720 to 725 ft (219.5 to 221.0 m), 800 to 805 ft (243.8 to 245.4 m), 855 to 860 ft (260.6 to 262.1 m).
DATUM.--Altitude of land-surface datum is 37 ft (11 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 4.25 ft (1.30 m) above land-surface datum.
REMARKS.--Water level affected by local pumpage. Recorder installed Oct. 25, 1979; manual measurements published prior to October 1980, recorded values thereafter.
PERIOD OF RECORD.--March 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 156.65 ft (47.75 m) below land-surface datum, Dec. 27, 1969; lowest measured, 219.29 ft (66.84 m) below land-surface datum, May 18, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	-	183.43	182.84	183.17	-	186.86	186.79	186.37	186.74	187.03	187.08	186.85
10	183.04	183.31	182.98	-	-	186.98	186.74	186.39	186.74	187.03	187.09	186.87
15	-	182.94	-	-	186.12	187.02	186.63	186.41	186.72	186.99	187.07	186.52
20	183.31	182.75	183.36	-	186.43	186.96	186.50	186.49	186.84	186.99	186.93	186.30
25	183.37	182.65	183.64	184.26	186.62	186.94	186.38	186.58	186.95	186.98	186.86	186.33
EOM	183.42	182.61	183.29	184.62	-	186.84	186.37	186.62	187.01	187.03	186.83	186.44

WTR YR 1981 HIGHEST 182.60 NOV 29, 1980 LOWEST 187.10 AUG 11, 12, 1981

364425076532701. Local number, 55B45.
LOCATION.--Lat 36°44'25", long 76°53'27", Hydrologic Unit 03010202, near Maynards Crossroads. Owner: R. J. Goodrich.
AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm), depth 348 ft (106.1 m), screened 338 to 348 ft (103.0 to 106.1 m).
DATUM.--Altitude of land-surface datum is 37 ft (11 m) National Geodetic Vertical Datum of 1929. Measuring point: Top edge of recorder shelf, 2.20 ft (0.67 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 33.
PERIOD OF RECORD.--December 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 130.06 ft (39.64 m) below land-surface datum, Aug. 15, 1974; lowest measured, 167.00 ft (50.90 m) below land-surface datum, Aug. 12, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 21	161.02	APR 29	165.35	JUL 7	166.73
NOV 17	162.65	MAY 18	164.18	AUG 12	167.00
DEC 10	159.80	JUN 17	165.87	SEP 10	166.64

JAMES CITY COUNTY

371311076463601. Local number, 56F1.
LOCATION.--Lat 37°13'11", long 76°46'36", Hydrologic Unit 02080206, Colonial Parkway near Jamestown. Owner: U.S. Department of Interior. Colonial National Historical Park.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm), depth 342 ft (104.2 m), screen depth unknown.
DATUM.--Altitude of land-surface datum is 10 ft (3 m) National Geodetic Vertical Datum of 1929. Measuring point: Top edge of recorder shelf, 3.15 ft (0.96 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 18.
PERIOD OF RECORD.--May 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 43.29 ft (13.19 m) below land-surface datum, May 8, 1969; lowest measured, 72.85 ft (22.20 m) below land-surface datum, Aug. 19, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 16	70.65	APR 30	69.62	JUL 7	70.88	SEP 18	71.94
NOV 22	68.85	MAY 21	68.64	JUL 29	72.37		
DEC 4	68.75	JUN 5	69.67	AUG 19	72.85		

KING AND QUEEN COUNTY

373126076454101. Local number, 56J11.
LOCATION.--Lat 37°31'26", long 76°45'41", Hydrologic Unit 02080105, at West Point airport. Owner: Chesapeake Corporation.
AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 1,254 ft (382.2 m), screened 1,233 to 1,248 ft (375.8 to 380.4 m).
DATUM.--Altitude of land-surface datum is 15 ft (4.6 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.6 ft (0.2 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 73 through the 1979 water year; by U.S. Geological Survey thereafter. Recorder removed June 3, 1975; manual measurements thereafter.
PERIOD OF RECORD.--October 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 73.08 ft (22.27 m) below land-surface datum, Apr. 25, 1975; lowest measured, 85.77 ft (26.14 m) below land-surface datum, Aug. 13, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	83.66	APR 8	84.69	AUG 13	85.77
FEB 11	83.44	JUN 5	85.30		

373008076425601. Local number, 57J3.
LOCATION.--Lat 37°30'08", long 76°42'56", Hydrologic Unit 02080107, Gressitt observation well, near West Point. Owner: Chesapeake Corporation.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 900 ft (274 m), cased to 328 ft (100 m), screened 328 to 359 ft (100 to 109.4 m), 367 to 377 ft (111.9 to 114.9 m), lower screen settings unknown.
DATUM.--Altitude of land-surface datum is 51 ft (15.5 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.20 ft (0.06 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 74 through the 1979 water year; by the U.S. Geological Survey thereafter. Recorder removed June 10, 1976; manual measurements thereafter.
PERIOD OF RECORD.--November 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 109.90 ft (33.50 m) below land-surface datum, Jan. 26, 1975; lowest measured, 120.00 ft (36.58 m) below land-surface datum, Aug. 13, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	119.62	APR 8	119.45	AUG 13	120.00
FEB 11	119.31	JUN 5	119.32		

LOUDOUN COUNTY

391542077423801. Local number, 49Y1.
LOCATION.--Lat 39°15'42", long 77°42'38", Hydrologic Unit 02070008, near Harpers Ferry. Owner: American Telephone and Telegraph Company.
AQUIFER.--Bedrock of Precambrian or Cambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6.5 in (165 mm). Prior to 1974, diameter reported as 8 in (200 mm). Depth 516 ft (157.3 m), cased to 45 ft (13.7 m), open hole 45 to 516 ft (13.7 to 157.3 m).
DATUM.--Altitude of land-surface datum is 1,100 ft (335 m) National Geodetic Vertical Datum of 1929. Prior to 1974, altitude reported as 940 ft (287 m). Measuring point: Top of casing, 1 ft (0.3 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 22.
PERIOD OF RECORD.--August 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 48.00 ft (14.63 m) below land-surface datum, June 22, 1972; lowest measured, 61.47 ft (18.74 m) below land-surface datum, Nov. 5, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 6	61.40	APR 7	60.75	JUL 8	59.65
FEB 18	60.55	MAY 20	58.72	AUG 19	60.14

390623077314201. Local number, 50W4C.
LOCATION.--Lat 39°06'23", long 77°31'42", Hydrologic Unit 02070008, east of Highway 7 on east side of town of Leesburg, under water tower. Owner: Town of Leesburg.
AQUIFER.--Slightly metamorphosed Balls Bluff formation of Triassic age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 535 ft (163.00 m), cased to 6 ft (1.83 m), open hole 6 to 535 ft (1.83 to 163.00 m).
DATUM.--Altitude of land-surface datum is 400 ft (122 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--October 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 34.96 ft (10.66 m) below land-surface datum, Apr. 2, 1980; lowest measured, 48.97 ft (14.93 m) below land-surface datum, Feb. 19, 1981.

LOUDOUN COUNTY--Continued

390623077314201--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	42.49	FEB 19	48.97	JUN 19	41.85
NOV 14	45.10	APR 2	48.02	AUG 10	42.80
JAN 14	47.79	MAY 6	44.97	SEP 8	44.52

LOUISA COUNTY

380217078133701. Local number, 45N1.
LOCATION.--Lat 38°02'17", long 78°13'43", Hydrologic Unit 02080106, near Thelma, 3 mi (5 km) southwest of Boswells Tavern on Tyler property near State Highway 640. Owner: Tyler.
AQUIFER.--Wissahickon formation of Late Precambrian (?) age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 56 ft (17.1 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 500 ft (152 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.95 ft (0.59 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board.
PERIOD OF RECORD.--July 1952 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 11.97 ft (3.65 m) below land-surface datum, Apr. 30, 1973; lowest, 34.24 ft (10.44 m) below land-surface datum, Oct. 15, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	28.33	29.60	30.46	31.14	31.71	31.54	31.39	31.95	32.35	32.80	33.27	33.82
10	28.57	29.79	30.57	31.23	31.79	31.47	31.52	32.02	32.44	32.89	33.33	33.90
15	28.80	29.93	30.69	31.32	31.80	31.37	31.65	32.10	32.50	32.95	33.40	34.00
20	29.00	30.10	30.81	31.42	31.77	31.30	31.74	32.17	32.59	33.02	33.56	34.06
25	29.19	30.25	30.92	31.50	31.72	31.30	31.83	32.20	32.68	33.10	33.66	34.13
EOM	29.41	30.34	31.02	31.62	31.69	31.32	31.89	32.29	32.73	33.16	33.76	34.20

WTR YR 1981 HIGHEST 28.07 OCT 1, 1980 LOWEST 34.20 SEP 30, 1981

380045078111401. Local number, 45N4.
LOCATION.--Lat 38°00'45", long 78°11'14", Hydrologic Unit 02080106, near Thelma, 4 mi (6.4 km) southeast of Boswells Tavern east of U.S. Highway 15. Owner: Virginia Department of Correction.
AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 200 ft (61.0 m), cased to 42 ft (12.8 m), open hole 42 to 200 ft (12.8 to 61.0 m).
DATUM.--Altitude of land-surface datum is 415 ft (127 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.30 ft (0.70 m) above land-surface datum.
PERIOD OF RECORD.--February 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.40 ft (2.86 m) below land-surface datum, Apr. 28, 1980; lowest measured, 14.43 ft (4.40 m) below land-surface datum, Aug. 26, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	13.50	JAN 28	14.01	APR 29	13.19	JUL 29	13.92
NOV 25	13.59	FEB 25	12.84	MAY 28	13.67	AUG 26	14.43
DEC 23	13.72	MAR 30	13.25	JUN 29	14.25	SEP 29	13.94

380231078132801. Local number, 45N5.
LOCATION.--Lat 38°02'31", long 78°13'28", Hydrologic Unit 02080106, near Thelma, 3 mi (5 km) southwest of Boswells Tavern on Tyler property near State Highway 640. Owner: Tyler.
AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 14.15 ft (4.31 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 440 ft (134 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.35 ft (1.02 m) above land-surface datum.
PERIOD OF RECORD.--February 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.30 ft (0.09 m) below land-surface datum, Mar. 27, 1979; lowest measured, 6.81 ft (2.08 m) below land-surface datum, July 31, 1978.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	5.74	JAN 28	2.83	APR 29	2.91	JUL 29	6.31
NOV 25	5.50	FEB 25	1.59	MAY 28	6.25	AUG 26	6.47
DEC 23	3.27	MAR 30	2.59	JUN 29	6.64	SEP 29	6.32

LOUISA COUNTY--Continued

380236078132301. Local number, 45N6.
LOCATION.--Lat 38°02'36", long 78°13'23", Hydrologic Unit 02080106, near Thelma, 3 mi (5 km) southwest of Boswells Tavern on Tyler property near State Highway 640. Owner: Tyler.
AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 11.75 ft (3.58 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 440 ft (134 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.20 ft (0.98 m) above land-surface datum.
PERIOD OF RECORD.--February 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.06 ft (0.63 m) below land-surface datum, July 31, 1978; lowest measured, 9.85 ft (3.00 m) below land-surface datum, Sept. 28, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 30	8.37	JAN 28	7.89	APR 29	7.79	JUL 29	8.70
NOV 25	8.15	FEB 25	7.25	MAY 28	8.32	AUG 26	9.22
DEC 23	7.88	MAR 30	7.44	JUN 29	9.14	SEP 29	8.93

380131078001001. Local number, 46N1.
LOCATION.--Lat 38°01'31", long 78°00'10", Hydrologic Unit 02080106, in the town of Louisa. Owner: Town of Louisa.
AQUIFER.--Metamorphosed sedimentary and volcanic rocks of unknown age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 132 ft (40.2 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 455 ft (139 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.6 ft (0.18 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 56.
PERIOD OF RECORD.--March 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 26.27 ft (8.01 m) below land-surface datum, May 18, 1973; lowest measured, 34.12 ft (10.40 m) below land-surface datum, Sept. 8, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	29.00	APR 29	33.82	JUN 7	34.00	AUG 11	33.10
NOV 5	30.25	MAY 5	33.85	JUN 11	34.04	SEP 8	34.12
DEC 8	31.95	MAY 15	34.05	JUL 29	33.94		

MONTGOMERY COUNTY

370812080261901. Local number, 27F2.
LOCATION.--Lat 37°08'12", long 80°26'19", Hydrologic Unit 05050001, in the town of Christiansburg. Owner: Town of Christiansburg.
AQUIFER.--Beekmantown formation of Early Ordovician age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in (250 mm), depth 450 ft (137.2 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 1,970 ft (600 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.60 ft (0.49 m) below land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 19.
PERIOD OF RECORD.--May 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 1.98 ft (0.60 m) below land-surface datum, Apr. 14, 1980; lowest, 7.30 ft (2.23 m) below land-surface datum, Dec. 5, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 6	6.27	APR 7	5.99	JUL 8	6.12
FEB 17	5.71	JUN 2	6.08	AUG 19	6.68

NELSON COUNTY

374224078555601. Local number, 39K1.
LOCATION.--Lat 37°42'24", long 78°55'56", Hydrologic Unit 02080203, near Colleen. Owner: P. D. Payne.
AQUIFER.--Lovingston (or Marshall?) formation of Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 275 ft (83.8 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 785 ft (239 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1 ft (0.3 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 6.
PERIOD OF RECORD.--October 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 27.08 ft (8.25 m) below land-surface datum, June 29, 1973; lowest measured, 35.66 ft (10.87 m) below land-surface datum, Mar. 7, 1969.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 8	31.86	APR 9	33.29	JUL 6	33.66
FEB 20	32.48	MAY 20	33.25	AUG 20	34.01

NEW KENT COUNTY

372428076561501. Local number, 55H1.
LOCATION.--Lat 37°24'28", long 76°56'15", Hydrologic Unit 02080206, Walkers Dam, near Walkers. Owner: City of Newport News.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 to 4 in (150 to 100 mm), depth 626 ft (190.8 m), screen (slotted casing) 252 to 257 ft (76.8 to 78.3 m), 339 to 344 ft (103.3 to 104.9 m), 439 to 444 ft (133.8 to 135.3 m), 615 to 625 ft (187.5 to 190.5 m).
DATUM.--Altitude of land-surface datum is 10 ft (3 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.8 ft (0.2 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 17.
PERIOD OF RECORD.--March 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 30.24 ft (9.22 m) below land-surface datum, Apr. 10, 1969; lowest measured, 51.57 ft (15.72 m) below land-surface datum, Sept. 9, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 23	50.80	APR 30	49.82	JUL 9	50.26
NOV 5	49.40	MAY 15	50.72	AUG 11	50.95
DEC 8	50.67	JUN 4	51.22	SEP 9	51.57

CITY OF NORFOLK

365223076122101. Local number, 61C1.
LOCATION.--Lat 36°52'23", long 76°12'21", Hydrologic Unit 02080108, Moore's Bridge Filter Plant, Norfolk. Owner: City of Norfolk.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 970 ft (295.7 m), screened 900 to 960 ft (274.3 to 292.6 m).
DATUM.--Altitude of land-surface datum is 10.80 ft (3.29 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 3.15 ft (0.96 m) above land-surface datum. Measuring point changed from 4.0 ft (1.2 m) above land-surface datum Dec. 15, 1979.
REMARKS.--U.S. Geological Survey test well 1. Water level affected by pumping and recharge operations in nearby wells May 18, 1971, to Nov. 5, 1973. Recorder removed Dec. 15, 1978; manual measurements thereafter.
PERIOD OF RECORD.--January 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.70 ft (4.18 m) below land-surface datum, Feb. 17, 1968; lowest measured, 49.51 ft (15.09 m) below land-surface datum, Sept. 3, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	47.67	MAR 6	48.02	JUL 2	49.09
JAN 8	47.75	MAY 14	48.60	SEP 3	49.51

ORANGE COUNTY

381002078094201. Local number, 45P1.
LOCATION.--Lat 38°10'02", long 78°09'42", Hydrologic Unit 02080106. Gordonsville. Owner: M. L. Johnson.
AQUIFER.--Phyllite of Evington group of Cambrian or Precambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 98 ft (29.9 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 480 ft (146 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.3 ft (0.1 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 30.
PERIOD OF RECORD.--February 1965 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 11.83 ft (3.61 m) below land-surface datum, Apr. 10, 1973; lowest, 35.90 ft (10.94 m) below land-surface datum, Jan. 31, 1966.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 9	34.02	APR 10	31.96	JUL 13	33.55
FEB 23	31.67	MAY 22	32.22	AUG 21	34.86

PRINCE WILLIAM COUNTY

384930077420801. Local number, 49U1.
LOCATION.--Lat 38°49'30", long 77°42'08", Hydrologic Unit 02070010, north of State Highway 55 near Thoroughfare Gap, 3.7 mi (6.0 km) west of Haymarket. Owner: Virginia Department of Highways and Transportation.
AQUIFER.--Shale and sandstone of Newark group of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in (175 mm), depth 345 ft (105.2 m), cased to 20 ft (6.1 m), open hole 20 to 345 ft (6.1 to 105.2 m).
DATUM.--Altitude of land-surface datum is 383 ft (117 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft (0.61 m) above land-surface datum.
REMARKS.--Recorder removed Feb. 9, 1980; manual measurements thereafter.
PERIOD OF RECORD.--October 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.59 ft (0.79 m) below land-surface datum, Mar. 19, 1975; lowest, 10.22 ft (3.12 m) below land-surface datum, Nov. 8, 9, 1968.

PRINCE WILLIAM COUNTY--Continued

384930077420801--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 6	8.44	JAN 1	8.16	APR 2	5.89	JUL 13	7.16
NOV 20	8.27	FEB 19	6.02	MAY 6	5.48	AUG 7	7.46

385607077381101. Local number, 49V1.
LOCATION.--Lat 38°56'07", long 77°38'11", Hydrologic Unit 02070010, north of Haymarket at intersection of State Highways 600 and 615. Owner: J. H. Hutchison.
AQUIFER.--Shale and sandstone of Newark group of Triassic age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 7 in (175 mm), depth 165 ft (50.3 m), cased to 10 ft (3.0 m), open hole 10 to 165 ft (3.0 to 50.3 m).
DATUM.--Altitude of land-surface datum is 420 ft (128 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1 ft (0.3 m) above land-surface datum.
PERIOD OF RECORD.--November 1968 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 6.85 ft (2.09 m) below land-surface datum, Oct. 12, 1979; lowest, 12.28 ft (3.74 m) below land-surface datum, July 12, 13, 1970.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	11.16	11.15	10.72	11.33	10.88	9.05	9.94	9.10	9.39	9.90	10.33	-
10	11.26	11.27	10.79	11.46	10.89	9.19	10.08	9.42	9.74	10.09	-	-
15	11.45	11.28	10.87	11.58	10.26	9.43	9.67	9.13	9.92	10.60	-	-
20	11.55	11.06	11.14	11.60	9.85	9.58	9.66	9.28	10.09	10.73	-	-
25	11.65	10.82	11.16	11.43	8.62	9.82	9.70	9.68	10.00	10.79	-	-
EOM	11.06	10.54	11.12	11.48	8.75	9.96	9.77	10.01	10.50	10.19	-	-

WTR YR 1981 HIGHEST 8.57 FEB 25, 1981 LOWEST 11.74 OCT 23-24, 1980

383423077245901. Local number, 51S7.
LOCATION.--Lat 38°34'23", long 77°24'59", Hydrologic Unit 02070011, 0.7 mi (1.1 km) southeast of Belfair Crossroads and 700 ft (213.4 m) north of State Highway 619. Owner: National Park Service.
AQUIFER.--Wissahickan formation of Paleozoic age.
WELL CHARACTERISTICS.--Drilled observation well, diameter 6 in (150 mm), depth 490 ft (149.4 m), cased to 50 ft (15.2 m), open hole 50 to 490 ft (15.2 to 149.4 m).
DATUM.--Altitude of land-surface datum is 295 ft (90 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft (0.61 m) above land-surface datum.
PERIOD OF RECORD.--December 1977 to current year. Unpublished records available September 1973 to November 1975.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.27 ft (0.08 m) below land-surface datum, Oct. 11, 1979; lowest measured, 10.92 ft (3.328 m) below land-surface datum, Jan. 9, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 9	10.92	MAY 15	10.03	JUN 17	9.38

PULASKI COUNTY

370516080411501. Local number, 25E2.
LOCATION.--Lat 37°05'16", long 80°41'15", Hydrologic Unit 05050001, in the town of Dublin. Owner: Town of Dublin.
AQUIFER.--Conococheague formation of Late Cambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm), depth 370 ft (112.8 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 2,170 ft (661 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, at land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 59.
PERIOD OF RECORD.--April 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 60.00 ft (18.29 m) below land-surface datum, Mar. 18, 1973; lowest measured, 81.89 ft (24.96 m) below land-surface datum, Sept. 30, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 6	80.45	APR 7	78.13	JUL 8	77.20
FEB 18	79.20	MAY 13	78.80	AUG 19	79.79

CITY OF ROANOKE

371653079552101. Local number, 31G1.
LOCATION.--Lat 37°16'53", long 79°55'21", Hydrologic Unit 03010101, in the city of Roanoke. Owner: Nelson-Roanoke Corporation.
AQUIFER.--Rome formation of Cambrian age. Prior to 1974, reported as Elbrook formation.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 48 ft (14.6 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 917 ft (280 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.9 ft (0.27 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 8.
PERIOD OF RECORD.--August 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.97 ft (4.56 m) below land-surface datum, June 22, 1972; lowest measured, 23.15 ft (7.06 m) below land-surface datum, May 23, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 5	15.72	APR 6	18.44	JUL 8	18.06
FEB 17	18.06	MAY 13	19.04	AUG 18	18.17

ROCKBRIDGE COUNTY

373758079271601. Local number, 35K1.
LOCATION.--Lat 37°37'58", long 79°27'16", Hydrologic Unit 02080202, in the town of Glasgow. Owner: Town of Glasgow.
AQUIFER.--Rome formation of Cambrian age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 6 in (150 mm), depth 695 ft (211.8 m), length of casing unknown.
DATUM.--Altitude of land-surface datum is 745 ft (227 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.0 ft (0.6 m) above land-surface datum.
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 63.
PERIOD OF RECORD.--June 1972 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 15.92 ft (4.85 m) below land-surface dat[illegible], July 8, 1972; lowest measured, 28.46 ft (8.67 m) below land-surface datum, May 20, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
JAN 5	28.19	APR 6	28.20	JUL 9	27.90
FEB 17	28.08	MAY 20	28.46	AUG 17	27.56

ROCKINGHAM COUNTY

382150078424001. Local number, 41Q1.
LOCATION.--Lat 38°21'50", long 78°42'40", Hydrologic Unit 02070005, at Virginia Department of Highways and Transportation garage near McGaheysville. Owner: U.S. Geological Survey.
AQUIFER.--Conococheague limestone of Late Cambrian age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 1/4 in (158 mm), depth 310 ft (94.5 m), cased to 131 ft (39.9 m), open hole 131 to 310 ft (39.9 to 94.5 m).
DATUM.--Altitude of land-surface datum is 1,105 ft (337 m) National Geodetic Vertical Datum of 1929. Measuring point: Top edge of recorder shelf, 3.50 ft (1.07 m) above land-surface datum.
PERIOD OF RECORD.--August 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 60.38 ft (18.40 m) below land-surface datum, Dec. 26, 1972; lowest, 87.18 ft (26.57 m) below land-surface datum, Oct. 26, 1977.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	70.73	73.37	74.72	76.77	80.16	76.06	75.20	75.97	71.81	69.17	68.35	69.70
10	71.13	73.79	74.85	77.23	80.62	75.30	75.46	75.99	70.57	68.00	68.29	70.06
15	71.60	74.21	75.04	77.92	80.79	74.96	75.72	76.03	70.03	67.64	68.33	70.47
20	72.06	74.47	75.36	78.48	80.66	74.81	75.85	76.00	69.78	67.73	68.61	70.90
25	72.49	74.65	75.73	79.02	-	74.89	75.97	74.89	69.66	68.01	68.90	71.40
EOM	72.96	74.64	76.26	79.71	-	75.02	76.02	73.55	69.74	68.22	69.33	71.94

WTR YR 1981 HIGHEST 67.59 JUL 14, 1981 LOWEST 80.83 FEB 17, 1981

SOUTHAMPTON COUNTY

364109077230701. Local number, 51B3.
LOCATION.--Lat 36°41'09", long 77°23'07", Hydrologic Unit 03010201, 150 ft (45.7 m) east of the intersection of State Highway 615 and U.S. 58, near Adams Grove. Owner: U.S. Geological Survey.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 4 in (100 mm), depth 175 ft (53.3 m), screened 165 to 175 ft (50.3 to 53.3 m).
DATUM.--Altitude of land-surface datum is 126 ft (38.4 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder shelf, 3.20 ft (0.98 m) above land-surface datum.
PERIOD OF RECORD.--July 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 54.21 ft (16.52 m) below land-surface datum, Apr. 30, 1978; lowest, 59.77 ft (18.22 m) below land-surface datum, Oct. 17-19, 1980.

SOUTHAMPTON COUNTY--Continued

364109077230701--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	59.64	-	59.31	58.57	59.17	58.55	58.16	57.66	57.66	58.18	58.85	59.04
10	59.66	-	59.13	58.50	59.14	58.56	58.19	57.75	57.48	58.16	58.97	59.14
15	59.75	-	58.91	58.45	59.02	58.43	58.22	57.67	57.57	58.31	58.93	59.27
20	59.68	59.41	58.84	58.59	58.82	58.43	58.10	57.73	57.72	58.39	58.96	59.26
25	-	59.31	58.70	58.82	58.72	58.19	57.74	57.75	57.93	58.42	58.79	59.47
EOM	-	59.25	58.58	59.10	58.72	58.15	57.68	57.72	58.17	58.66	58.85	59.57

WTR YR 1981 HIGHEST 57.48 JUN 10, 1981 LOWEST 59.77 OCT 17-19, 1980

364706077072301. Local number, 54C1.
LOCATION.--Lat 36°47'06", long 77°07'23", Hydrologic Unit 03010201, in the town of Sebrell. Owner: Norfolk and Western Railway.
AQUIFER.--Sand and gravel of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in (250 mm), depth 344 ft (104.9 m), screen depth unknown.
DATUM.--Altitude of land-surface datum is 58.4 ft (17.8 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, at land-surface datum.
PERIOD OF RECORD.--1907, July 1938, April 1940 to December 1946, September 1948 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.00 ft (4.57 m) below land-surface datum, 1907; lowest measured, 97.08 ft (29.59 m) below land-surface datum, Aug. 14, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 17	94.89	FEB 13	95.48	JUN 12	96.07
DEC 17	94.95	APR 13	95.98	AUG 14	97.08

CITY OF SUFFOLK

363828076380501. Local number, 57B8.
LOCATION.--Lat 36°38'27", long 76°38'05", Hydrologic Unit 03010205, 0.3 mi (0.48 km) southwest of State Highway 664 0.8 mi (1.29 km) east of U.S. Highway 13, and 6.7 mi (10.8 km) southwest of Suffolk. Owner: Soren F. Andresen.
AQUIFER.--Sand of Chesapeake group.
WELL CHARACTERISTICS.--Drilled flowing water well, diameter 2 in (50 mm), depth 65 ft (19.8 m), screened 50 to 65 ft (15.2 to 19.8 m).
DATUM.--Altitude of land-surface datum is 45 ft (13.7 m) National Geodetic Vertical Datum of 1929. Measuring point: At land-surface datum.
PERIOD OF RECORD.--November 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 6.51 ft (1.98 m) above land-surface datum, Mar. 9, 1979; lowest measured, at land-surface datum, Sept. 26, 1980.

WATER LEVEL, IN FEET ABOVE LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	1.00	FEB 2	2.71	MAY 14	4.17	SEP 3	4.23
JAN 8	2.65	MAR 6	4.64	JUL 2	3.24		

NOTE.--Flowing well, readings given are above land-surface datum.

363810076381001. Local number, 57B9.
LOCATION.--Lat 36°38'36", long 76°38'10", Hydrologic Unit 03010205, 0.2 mi (0.32 km) southwest of State Highway 664, 0.7 mi (1.13 km) southeast of U.S. Highway 13, and 6.7 mi (10.8 km) southwest of Suffolk. Owner: Soren Andresen.
AQUIFER.--Sand of Chesapeake group.
WELL CHARACTERISTICS.--Drilled flowing unused water well, diameter 1.25 in (32 mm), depth 85 ft (25.9 m), screened 70 to 85 ft (21.3 to 25.9 m).
DATUM.--Altitude of land-surface datum is 45 ft (13 m) National Geodetic Vertical Datum of 1929. Measuring point: At land-surface datum.
PERIOD OF RECORD.--November 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 5.63 ft (1.72 m) above land-surface datum, Mar. 9, 1979; lowest measured, 0.22 ft (0.07 m) below land-surface datum, Sept. 26, 1980.

WATER LEVEL, IN FEET ABOVE LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	0.64	FEB 2	1.64	MAY 14	3.35	SEP 3	3.20
JAN 8	2.00	MAR 6	3.72	JUL 2	2.40		

NOTE.--Flowing well, readings given are above land-surface datum.

CITY OF SUFFOLK--Continued

363353076331701. Local number, 58A23.
LOCATION.--Lat 36°33'53", long 76°33'17", Hydrologic Unit 03010205, 200 ft (61.0 m) north of State Highway 678, 400 ft (121.9 m) west of State Highway 604, and 12.1 mi (19.5 km) south of Suffolk. Owner: Raymond R. Brinkley.
AQUIFER.--Sand of undifferentiated Paleocene age.
WELL CHARACTERISTICS.--Drilled used water well, diameter 4 in (100 mm) to 80 ft (24.4 m), 2 in (50 mm) from 80 to 420 ft (24.4 to 128.0 m), depth 420 ft (128.0 m), screened 410 to 420 ft (125.0 to 128.0 m).
DATUM.--Altitude of land-surface datum is 60 ft (18 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.67 ft (0.2 m) above land-surface datum.
REMARKS.--Water level affected by pumpage.
PERIOD OF RECORD.--November 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.56 ft (9.92 m) below land-surface datum, May 31, 1978; lowest measured, 43.54 ft (13.27 m) below land-surface datum, July 8, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 3	41.81	APR 29	42.77	JUL 10	42.99
JAN 2	42.82	JUN 4	42.69	SEP 2	43.15
FEB 2	42.56	JUL 6	42.67	SEP 17	43.14

363928076332901. Local number, 58B13.
LOCATION.--Lat 36°39'28", long 76°33'29", Hydrologic Unit 03010205, 4 mi (6.4 km) south of Suffolk and east of State Highway 642. Owner: Melvin Brinkley.
AQUIFER.--Sand of Pleistocene age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 22 in (550 mm), depth 15 ft (4.6 m).
DATUM.--Altitude of land-surface datum is 40 ft (12 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder shelf, 1.90 ft (0.58 m) above land-surface datum.
PERIOD OF RECORD.--August 1975 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 2.95 ft (0.90 m) below land-surface datum, May 25, 1979; lowest, 13.44 ft (4.10 m) below land-surface datum, Jan. 23-26, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	12.55	-	-	-	13.39	-	12.25	-	-	11.28	11.74	12.13
10	-	-	-	13.30	-	12.48	-	-	-	11.32	11.84	12.15
15	-	13.15	-	13.27	-	12.40	-	-	-	11.36	11.94	12.20
20	-	13.22	-	13.28	-	12.34	-	-	11.25	11.43	12.04	12.25
25	-	13.28	-	13.44	-	12.31	-	-	11.20	11.51	12.09	12.31
EOM	-	13.31	-	13.42	-	12.28	-	-	11.23	11.63	12.12	12.38

WTR YR 1981 HIGHEST 11.20 JUN 23-25, 1981 LOWEST 13.44 JAN 23-26, 1981

363921076331601. Local number, 58B14.
LOCATION.--Lat 36°39'21", long 76°33'16", Hydrologic Unit 03010205, 4 mi (6.4 km) south of Suffolk and east of State Highway 642. Owner: Melvin Brinkley.
AQUIFER.--Sand of Pleistocene age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 22 in (550 mm), depth 9.30 ft (2.83 m).
DATUM.--Altitude of land-surface datum is 30 ft (9 m) National Geodetic Vertical Datum of 1929. Measuring point: Inside edge of casing, 2.5 ft (0.8 m) above land-surface datum. Measuring point previously reported as 2.7 ft (0.8 m) above land-surface datum.
PERIOD OF RECORD.--May 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.30 ft (0.09 m) below land-surface datum, Jan. 26, 1978; lowest measured, water level below bottom of casing, Sept. 29, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	2.65	MAY 8	4.19	JUL 10	4.46
JAN 2	2.62	JUN 8	2.38	AUG 4	6.40
FEB 2	4.56	JUL 6	3.90	SEP 1	5.02

363925076331701. Local number, 58B15.
LOCATION.--Lat 36°39'25", long 76°33'17", Hydrologic Unit 03010205, 4 mi (6.4 km) south of Suffolk and west of State Highway 642. Owner: Melvin Brinkley.
AQUIFER.--Sand of Pleistocene age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 22 in (550 mm), depth 6.6 ft (2.0 m), sounded Feb. 3, 1982, previously reported as 12 ft (3.7 m).
DATUM.--Altitude of land-surface datum is 35 ft (11 m) National Geodetic Vertical Datum of 1929. Measuring point: Inside edge of casing, 1.4 ft (0.4 m) above land-surface datum.
PERIOD OF RECORD.--May 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.98 ft (0.30 m) below land-surface datum, Jan. 26, 1978; lowest measured, below bottom of well at times each year.

CITY OF SUFFOLK--Continued

363925076331701--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	3.08	JUN 4	3.79	JUL 10	5.37	SEP 1	5.60
JAN 2	3.06	JUL 6	5.49	AUG 4	(a)		

a Below bottom of well.

363902076331901. Local number, 58B48.
LOCATION.--Lat 36°39'02", long 76°33'19", Hydrologic Unit 03010205, 4 mi (6.4 km) south of Suffolk and east of State Highway 642. Owner: Melvin Brinkley.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 24 in (600 mm), depth 7 ft (2.1 m).
DATUM.--Altitude of land-surface datum is 35 ft (11 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of inside edge of casing, 1.40 ft (0.43 m) above land-surface datum.
PERIOD OF RECORD.--May 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.20 ft (0.06 m) below land-surface datum, May 31, 1978; lowest measured, below bottom of well Sept. 29, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	3.64	FEB 2	4.47	JUL 10	4.98	SEP 1	4.97
JAN 2	3.64	JUL 6	5.61	AUG 4	6.27		

364301076314801. Local number, 58B114.
LOCATION.--Lat 36°43'30", long 76°31'48", Hydrologic Unit 03010205, at the intersection of Jericho Lane and Jericho Ditch in the Great Dismal Swamp. Owner: U.S. Fish and Wildlife.
AQUIFER.--Sand of Late Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm) to 61.8 ft (18.8 m), 2 in (50 mm) from 61.8 to 569.9 ft (18.8 to 173.7 m), depth 569.9 ft (173.7 m), screened 559.9 to 569.9 ft (170.7 to 173.7 m).
DATUM.--Altitude of land-surface datum is 25 ft (7 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 0.7 ft (0.2 m) above land-surface datum.
PERIOD OF RECORD.--May 1976 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 76.29 ft (23.25 m) below land-surface datum, May 21, 1976; lowest measured, 98.02 ft (29.88 m) below land-surface datum, July 16, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 4	91.27	JUN 29	97.70	AUG 5	97.67
APR 10	96.61	JUL 9	97.82	SEP 2	96.94
JUN 17	97.35	JUL 16	98.02	SEP 17	96.68

374330076345101. Local number, 58B235.
LOCATION.--Lat 37°43'30", long 76°34'51", Hydrologic Unit 02080208, in the Planters Plant in the city of Suffolk. Owner: Planters Peanut Company.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 10 in (250 mm) to 254 ft (77.4 m), 8 in (200 mm) from 254 to 422 ft (77.4 to 128.6 m), 6 in (150 mm) from 422 to 570.0 ft (128.6 to 173.7 m), depth 570 ft (173.7 m), screened 530 to 561.6 ft (161.5 to 171.2 m).
DATUM.--Altitude of land-surface datum is 53 ft (16 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 2.50 ft (0.76 m) above land-surface datum.
PERIOD OF RECORD.--November 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 125.25 ft (38.18 m) below land-surface datum, Apr. 2, 1980; lowest measured, 142.30 ft (43.37 m) below land-surface datum, July 2, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 14	137.04	MAR 6	140.53	JUL 2	142.30
JAN 8	139.12	MAY 14	142.23	SEP 3	140.35

SURRY COUNTY

370408076460101. Local number, 56E1.
LOCATION.--Lat 37°04'08", long 76°40'10", Hydrologic Unit 03010202, on State Highway 617, 3.2 mi (5.1 km) southwest of Bacons Castle. Owner: Buster E. Cox.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 18 in (450 mm) to 360 ft (109.7 m), 8 in (200 mm) from 333.5 to 705 ft (101.7 to 214.9 m), depth 705 ft (214.9 m), screened 401 to 411 ft (122.2 to 125.3 m), 431 to 441 ft (131.4 to 134.4 m), 463 to 473 (141.1 to 144.2 m), 495 to 505 ft (150.9 to 153.9 m), 540 to 555 ft (164.6 to 169.2 m), 700 to 705 ft (213.4 to 214.9 m).

SURRY COUNTY--Continued

370408076460101--Continued
DATUM.--Altitude of land-surface datum is 93 ft (28 m) National Geodetic Vertical Datum of 1929. Measuring point: Top edge of recorder shelf, 3.6 ft (1.1 m) above land-surface datum.
PERIOD OF RECORD.--March 1942, April 1969 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 73.52 ft (22.41 m) below land-surface datum, Mar. 10, 1942; lowest, 148.13 ft (45.15 m) below land-surface datum, Sept. 29, 30, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	144.34	144.39	144.52	144.51	144.65	144.54	144.87	145.20	145.43	146.19	147.20	147.74
10	144.36	144.46	144.44	144.54	144.65	144.66	144.99	145.22	145.38	146.30	147.35	147.70
15	144.46	144.50	144.47	144.53	144.69	144.66	145.10	145.22	145.60	146.48	147.40	147.80
20	144.43	144.52	144.61	144.52	144.52	144.66	145.03	145.30	145.70	146.63	147.51	147.79
25	144.46	144.47	144.55	144.53	144.57	144.79	145.03	145.39	145.87	146.86	147.56	148.03
EOM	144.38	144.44	144.42	144.64	144.62	144.81	145.08	145.38	146.10	147.11	147.68	148.13

WTR YR 1981 HIGHEST 144.16 OCT 25, 1980 LOWEST 148.13 SEP 29, 30, 1981

WESTMORELAND COUNTY

381110076550501. Local number, 55P5.
LOCATION.--Lat 38°11'10", long 76°55'05", Hydrologic Unit 02070011, behind craft shop at George Washington birthplace. Owner: National Park Service.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled observation water well, diameter 6 in (150 mm), depth 471 ft (143.6 m), screened 451 to 466 ft (137.5 to 142.0 m).
DATUM.--Altitude of land-surface datum is 24 ft (7 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of recorder shelf, 3.0 ft (0.9 m) above land-surface datum.
PERIOD OF RECORD.--July 1974 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 25.36 ft (7.73 m) below land-surface datum, Dec. 1, 1974; lowest, 35.28 ft (10.75 m) below land-surface datum, Sept. 23, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981
LOWEST VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	34.88	-	-	34.70	34.38	33.60	33.77	-	-	-	-	-
10	34.80	-	-	34.40	34.23	33.80	33.99	-	33.13	-	-	-
15	-	-	-	34.16	34.31	34.03	33.96	-	33.15	-	34.12	-
20	-	-	34.40	34.27	33.94	33.80	-	-	-	-	34.16	-
25	-	-	34.54	34.10	33.78	33.74	-	-	-	-	34.60	-
EOM	-	-	33.88	34.28	33.79	33.85	-	-	-	-	34.37	-

WTR YR 1981 HIGHEST 32.58 JUN 9, 1981 LOWEST 34.93 OCT 6, 1980

381132076551001. Local number, 55P9.
LOCATION.--Lat 38°11'32", long 76°55'10", Hydrologic Unit 02080104, 0.6 mi (0.97 km) north of the end of State Highway 204, off of State Highway 3 at George Washington Birthplace National Monument. Owner: National Park Service.
AQUIFER.--Sand of Quaternary age.
WELL CHARACTERISTICS.--Dug unused water well, diameter 36 in (900 mm), depth 22.6 ft (6.9 m).
DATUM.--Altitude of land-surface datum is 17 ft (5.2 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of concrete lip on casing, 1.65 ft (0.50 m) above land-surface datum.
PERIOD OF RECORD.--July 1977 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.11 ft (0.03 m) below land-surface datum, Oct. 11, 1979; lowest measured, 11.34 ft (3.46 m) below land-surface datum, Feb. 6, 1981.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	11.11	APR 8	6.15	AUG 13	9.04
FEB 6	11.34	JUN 6	5.14		

380538076490801. Local number, 56N1.
LOCATION.--Lat 38°05'38", long 76°49'08", Hydrologic Unit 02080104, at Washington and Lee School near Montross. Owner: Westmoreland County Public Schools.
AQUIFER.--Sand of undifferentiated Cretaceous age.
WELL CHARACTERISTICS.--Drilled unused water well, diameter 4 in (100 mm) to 189 ft (57.6 m), 2 in (50 mm) from 189 to 641 ft (57.6 to 195.4 m), depth 641 ft (195.4 m), screened 608 to 628 ft (185.3 to 191.4 m).
DATUM.--Altitude of land-surface datum is 149 ft (45 m) National Geodetic Vertical Datum of 1929. Measuring point: Top of casing, 1.2 ft (0.4 m) above land-surface datum. Top of casing previously reported as 1 ft (0.3 m).
REMARKS.--Records furnished by the Virginia State Water Control Board as observation well 16.
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 133.47 ft (40.68 m) below land-surface datum, Aug. 28, 1967; lowest measured, 157.20 ft (47.91 m) below land-surface datum, Jan. 28, 1980.

WESTMORELAND COUNTY--Continued

380538076490801--Continued

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	154.55	MAY 6	153.20	JUL 1	153.95
NOV 18	154.25	MAY 19	152.92	AUG 25	154.17
DEC 2	153.70	JUN 4	153.37	SEP 3	154.21

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

LOCAL IDENTI- FIER	STATION NUMBER	GEO- LOGIC UNIT	DATE OF SAMPLE	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOT- TOM OF WATER- BEARING ZONE (FT)	DEPTH TO TOP OF WATER- BEARING ZONE (FT)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)
				BUCHANAN					
14E 7	370436082022201	324NRTN	81-01-19	90	90	45	268	6.7	10.9
14ES 4*	370438082021901	324NRTN	81-01-20	--	--	--	312	6.4	7.8
14E 6	370442082022201	324NRTN	81-01-19	98	98	63	221	6.9	8.8
14E 8	370445082022701	324NRTN	81-01-20	90	--	--	256	7.6	10.2
14E 36	370448082041801	324NRTN	81-07-21	265	--	--	360	7.4	14.5
14E 9	370500082024001	324NRTN	81-01-20	52	52	25	178	6.5	12.4
14ES 7*	370507082020601	324NRTN	81-02-18	--	--	--	207	5.9	8.5
14E 15	370508082020801	324NRTN	81-02-17	--	--	--	197	6.8	14.0
14E 5	370514082024501	110QRNR	81-01-19	19	20	--	226	6.1	10.5
14E 11	370523082025701	110QRNR	81-01-20	30	30	--	161	6.6	10.9
14ES 2*	370526082025501	324NRTN	81-01-16	--	--	--	234	6.4	3.0
14E 16	370528082021801	324NRTN	81-02-17	80	--	--	136	5.8	14.5
14ES 1*	370528082025701	324NRTN	81-01-16	--	--	--	102	6.7	--
14E 10	370528082025801	324NRTN	81-01-20	123	123	10	197	6.5	12.4
14E 17	370542082022201	324NRTN	81-02-18	67	67	--	121	5.3	13.0
14E 12	370552082025401	324NRTN	81-01-21	50	50	45	277	6.6	7.9
14ES 5*	370554082022001	324NRTN	81-02-17	--	--	--	54	5.3	10.0
14E 18	370557082021901	324NRTN	81-02-18	180	--	--	162	5.7	12.5
14E 19	370603082021501	324NRTN	81-02-18	53	--	--	177	5.8	12.5
14E 24	370604082025401	324NRTN	81-06-11	83	--	--	270	7.2	16.0
13E 5	370607082080901	324NRTN	81-07-20	175	--	--	365	6.8	21.5
13E 4	370608082081001	324NRTN	81-07-20	27	--	--	265	6.5	19.0
14E 13	370609082030001	110QRNR	81-01-21	20	--	--	127	6.6	9.6
14ES11*	370610082032901	324NRTN	81-06-11	--	--	--	28	5.8	12.0
14E 22	370617082031601	324NRTN	81-06-11	90	--	--	180	6.4	13.0
14ES10*	370622082031501	324NRTN	81-06-11	--	--	--	44	6.4	15.0
14E 14	370622082032401	110QRNR	81-01-21	0	--	--	283	6.1	7.2
14ES 3*	370626082022101	324NRTN	81-01-16	--	--	--	24	6.3	--
14E 30	370628082070101	324NRTN	81-07-20	37	--	--	226	7.3	16.0
14E 29	370628082071601	324NRTN	81-07-20	62	--	--	320	7.6	20.0
14E 31	370634082055501	324NRTN	81-07-21	165	--	--	310	7.2	21.5
14ES 6*	370637082032401	324NRTN	81-02-18	--	--	--	30	5.1	12.0
14E 34	370637082051901	324NRTN	81-07-20	200	--	--	380	8.4	16.5
13E 6	370638082075401	324NRTN	81-07-20	62	--	--	195	6.3	22.0
14ES 8*	370639082025601	324NRTN	81-02-20	--	--	--	48	5.4	9.5
14ES 9*	370641082023801	324NRTN	81-02-20	--	--	--	35	5.5	7.5
13E 7	370642082075701	324NRTN	81-07-20	45	--	--	285	6.9	24.0
13E 8	370655082073101	324NRTN	81-07-20	50	--	--	210	6.5	18.0
14E 28	370658082072601	324NRTN	81-07-20	63	--	--	310	6.5	21.0
14E 27	370659082072901	324NRTN	81-07-20	56	--	--	250	6.3	21.0
14E 23	370701082033201	324NRTN	81-06-11	285	--	--	320	6.6	16.0
14ES12*	370704082033401	324NRTN	81-06-11	--	--	--	39	5.4	17.0
14ES13*	370713082051001	324NRTN	81-07-21	--	--	--	120	6.0	22.0
14E 33	370720082045801	110QRNR	81-07-21	20	--	--	380	6.7	17.0
14E 35	370720082045802	324NRTN	81-07-21	85	--	--	380	6.7	17.0
14E 20	370745082031101	324NRTN	81-02-18	65	--	--	152	5.8	12.0
14F 88	370750082043701	324NRTN	81-07-21	23	--	--	50	5.3	16.5
14F 89	370755082030901	110QRNR	81-07-21	15	--	--	120	5.6	21.0
15F 23	370805081574201	324NRTN	81-07-22	27	--	--	116	6.1	19.0
14FS 7*	370815082035501	324NRTN	81-07-21	--	--	--	120	7.9	20.0

* Spring

Geologic Unit (aquifer):

110QRNR - Alluvium, Quaternary age.
324NRTN - Norton Formation, Middle Pennsylvanian age.

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WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

LOCAL IDENTI- FIER	DATE OF SAMPLE	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
					BUCHANAN					
14E 7	81-01-19	62	18	4.1	31	1.7	133	4.2	7.8	.2
14ES 4*	81-01-20	67	17	5.9	39	1.8	128	22	7.8	.3
14E 6	81-01-19	68	19	4.7	16	2.1	91	17	2.3	.2
14E 8	81-01-20	7	2.0	.5	53	1.5	140	7.6	1.8	.2
14E 36	81-07-21	64	19	3.8	48	2.2	150	3.3	9.0	--
14E 9	81-01-20	69	18	5.6	7.2	1.4	87	4.3	1.8	.2
14ES 7*	81-02-18	100	21	12	3.1	1.8	16	84	1.3	<.1
14E 15	81-02-17	51	14	3.7	18	1.2	86	2.8	2.5	.2
14E 5	81-01-19	89	21	8.9	4.6	2.3	51	34	14	<.1
14E 11	81-01-20	63	15	6.2	5.5	2.5	48	14	11	.1
14ES 2*	81-01-16	110	27	9.5	7.9	1.7	112	13	.9	.1
14E 16	81-02-17	51	13	4.5	10	1.1	70	1.4	1.2	.1
14ES 1*	81-01-16	37	7.5	4.4	4.0	1.2	29	14	1.0	<.1
14E 10	81-01-20	60	17	4.0	15	1.4	101	.9	2.8	.2
14E 17	81-02-18	46	12	3.8	5.4	.8	52	5.3	1.1	<.1
14E 12	81-01-21	74	20	5.4	26	1.4	138	2.5	.8	.2
14ES 5*	81-02-17	13	2.3	1.7	2.0	1.0	4.0	8.8	2.6	<.1
14E 18	81-02-18	50	12	4.7	7.1	.8	28	35	2.2	.1
14E 19	81-02-18	46	12	3.8	6.7	.9	58	2.3	1.1	.1
14E 24	81-06-11	98	27	7.3	18	1.3	120	11	3.0	.2
13E 5	81-07-20	120	32	10	20	1.7	100	20	42	--
13E 4	81-07-20	90	22	8.4	12	1.7	52	40	12	--
14E 13	81-01-21	41	10	3.8	5.7	4.5	33	9.6	4.3	<.1
14ES11*	81-06-11	5	1.1	.6	1.6	1.0	3.0	1.0	2.0	<.1
14E 22	81-06-11	53	15	3.6	8.2	.9	55	8.0	3.8	<.1
14ES10*	81-06-11	13	2.7	1.5	2.1	1.3	8.0	8.2	.9	<.1
14E 14	81-01-21	95	27	6.7	7.3	13	50	33	15	<.1
14ES 3*	81-01-16	6	1.0	.8	1.9	.7	10	4.0	.7	<.1
14E 30	81-07-20	70	19	5.3	24	1.1	110	2.5	4.2	--
14E 29	81-07-20	94	26	6.8	31	1.2	160	2.2	5.4	--
14E 31	81-07-21	37	10	2.7	59	1.1	150	1.9	6.0	--
14ES 6*	81-02-18	5	.7	.7	2.0	.8	12	1.8	.6	<.1
14E 34	81-07-20	23	6.4	1.6	75	.9	180	1.4	8.4	--
13E 6	81-07-20	63	17	4.9	12	2.8	69	8.6	5.4	--
14ES 8*	81-02-20	13	2.7	1.4	1.6	.9	5.0	5.9	.7	<.1
14ES 9*	81-02-20	9	2.1	1.0	1.3	.7	3.0	7.3	.6	<.1
13E 7	81-07-20	79	20	7.0	33	1.0	120	3.6	9.6	--
13E 8	81-07-20	70	18	6.0	10	1.0	69	18	9.5	--
14E 28	81-07-20	110	28	8.8	16	1.4	87	32	6.5	--
14E 27	81-07-20	86	23	6.8	14	1.6	66	32	10	--
14E 23	81-06-11	140	39	9.7	8.9	1.5	140	14	1.5	.1
14ES12*	81-06-11	6	1.0	.9	2.8	1.3	17	2.7	1.8	<.1
14ES13*	81-07-21	44	11	3.9	9.8	1.9	37	12	2.4	--
14E 33	81-07-21	60	15	5.3	56	1.3	20	1.6	1.6	--
14E 35	81-07-21	35	10	2.4	11	2.7	17	10	3.0	--
14E 20	81-02-18	46	13	3.3	9.1	.8	58	4.2	.9	<.1
14F 88	81-07-21	15	2.9	1.8	1.5	1.0	13	10	.9	--
14F 89	81-07-21	39	9.2	3.8	2.8	2.2	40	7.3	1.5	--
15F 23	81-07-22	32	8.4	2.6	12	1.1	26	11	6.0	--
14FS 7*	81-07-21	44	11	3.9	3.3	1.2	44	9.6	.7	--

* Spring
< Actual value is known to be less than the value shown.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

LOCAL IDENTI-FIER	DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	COPPER, DIS-SOLVED (UG/L AS CU)
BUCHANAN										
14E 7	81-01-19	15	164	165	.03	.060	20	400	2	<1
14ES 4*	81-01-20	14	190	187	.01	.100	10	200	1	<1
14E 6	81-01-19	16	133	135	.04	.080	20	500	1	<1
14E 8	81-01-20	10	170	161	.03	.100	30	100	2	2
14E 36	81-07-21	--	208	--	--	--	--	600	--	--
14E 9	81-01-20	19	112	113	.04	.070	10	400	2	<1
14ES 7*	81-02-18	5.9	154	139	.82	<.010	<10	70	<1	2
14E 15	81-02-17	16	107	113	.72	.140	<10	200	<1	2
14E 5	81-01-19	5.3	122	122	.36	.040	30	60	<1	2
14E 11	81-01-20	9.9	100	94	.81	.010	20	70	1	<1
14ES 2*	81-01-16	18	149	147	.06	.060	20	300	2	<1
14E 16	81-02-17	18	89	92	.17	.050	<10	200	<1	4
14ES 1*	81-01-16	9.8	63	60	.51	.030	30	40	<1	<1
14E 10	81-01-20	16	114	120	.02	.110	20	600	2	<1
14E 17	81-02-18	19	78	79	.12	.950	<10	200	<1	5
14E 12	81-01-21	16	151	158	.06	.020	10	800	1	<1
14ES 5*	81-02-17	8.1	37	29	.95	<.010	<10	20	<1	1
14E 18	81-02-18	16	109	107	.06	.120	<10	300	2	2
14E 19	81-02-18	16	80	82	.01	.080	<10	300	1	1
14E 24	81-06-11	15	177	156	.12	.010	<10	400	3	1
13E 5	81-07-20	--	231	--	--	--	--	900	--	--
13E 4	81-07-20	--	169	--	--	--	--	300	--	--
14E 13	81-01-21	8.1	83	67	3.0	.030	10	60	<1	2
14ES11*	81-06-11	11	30	20	.47	<.010	<10	20	3	1
14E 22	81-06-11	16	102	95	1.5	.030	<10	200	2	1
14ES10*	81-06-11	12	40	34	.18	.020	20	20	3	1
14E 14	81-01-21	8.9	191	142	9.1	.050	20	80	1	1
14ES 3*	81-01-16	16	27	32	.32	.020	30	20	2	<1
14E 30	81-07-20	--	140	--	--	--	--	300	--	--
14E 29	81-07-20	--	183	--	--	--	--	400	--	--
14E 31	81-07-21	--	189	--	--	--	--	300	--	--
14ES 6*	81-02-18	14	25	28	.26	<.010	<10	20	<1	1
14E 34	81-07-20	--	229	--	--	--	--	200	--	--
13E 6	81-07-20	--	110	--	--	--	--	200	--	--
14ES 8*	81-02-20	7.8	30	24	1.6	<.010	<10	20	<1	<1
14ES 9*	81-02-20	7.5	24	23	.35	<.010	10	20	<1	2
13E 7	81-07-20	--	165	--	--	--	--	400	--	--
13E 8	81-07-20	--	125	--	--	--	--	300	--	--
14E 28	81-07-20	--	177	--	--	--	--	400	--	--
14E 27	81-07-20	--	139	--	--	--	--	400	--	--
14E 23	81-06-11	16	186	177	.11	.020	<10	900	3	2
14ES12*	81-06-11	13	44	34	.30	.020	20	10	<1	2
14ES13*	81-07-21	--	83	--	--	--	--	90	--	--
14E 33	81-07-21	--	222	--	--	--	--	400	--	--
14E 35	81-07-21	--	70	--	--	--	--	100	--	--
14E 20	81-02-18	14	85	81	.20	.040	<10	200	<1	--
14F 88	81-07-21	--	36	--	--	--	--	30	--	--
14F 89	81-07-21	--	67	--	--	--	--	60	--	--
15F 23	81-07-22	--	64	--	--	--	--	200	--	--
14FS 7*	81-07-21	--	65	--	--	--	--	40	--	--

* Spring
< Actual value is known to be less than the value shown

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

LOCAL IDENTI- FIER	DATE OF SAMPLE	IRON, TOTAL RECOV- ERABLE (UG/L AS FE)	IRON, DIS- SOLVED (UG/L AS FE)	LEAD, DIS- SOLVED (UG/L AS PB)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN)	MANGA- NESE, DIS- SOLVED (UG/L AS MN)	STRON- TIUM, DIS- SOLVED (UG/L AS SR)	ZINC, DIS- SOLVED (UG/L AS ZN)
				BUCHANAN				
14E 7	81-01-19	1600	1600	<1	110	130	290	10
14ES 4*	81-01-20	1200	880	<1	150	160	220	<4
14E 6	81-01-19	1400	1000	<1	80	70	450	390
14E 8	81-01-20	150	60	<1	10	4	100	30
14E 36	81-07-21	360	220	--	30	30	490	--
14E 9	81-01-20	2400	1600	<1	270	290	260	70
14ES 7*	81-02-18	430	10	<1	30	3	100	<4
14E 15	81-02-17	4700	1700	<1	180	120	150	260
14E 5	81-01-19	910	20	<1	30	20	110	10
14E 11	81-01-20	510	<10	<1	20	2	100	20
14ES 2*	81-01-16	4300	760	<1	260	170	250	<4
14E 16	81-02-17	610	60	<1	100	80	180	520
14ES 1*	81-01-16	590	60	<1	30	4	50	<4
14E 10	81-01-20	1800	410	<1	100	100	570	160
14E 17	81-02-18	24000	70	<1	1500	150	100	10
14E 12	81-01-21	240	50	<1	60	50	840	300
14ES 5*	81-02-17	170	30	<1	<10	<1	20	4
14E 18	81-02-18	11000	11000	<1	640	660	160	90
14E 19	81-02-18	4400	2900	<1	200	200	180	230
14E 24	81-06-11	330	70	<1	70	60	440	100
13E 5	81-07-20	730	160	--	100	110	850	--
13E 4	81-07-20	5700	2900	--	660	660	330	--
14E 13	81-01-21	430	30	<1	30	10	90	50
14ES11*	81-06-11	1300	<10	<1	250	1	10	7
14E 22	81-06-11	6400	5900	<1	320	320	190	170
14ES10*	81-06-11	510	30	<1	20	2	20	8
14E 14	81-01-21	830	<10	<1	30	9	160	<4
14ES 3*	81-01-16	990	60	<1	70	40	10	10
14E 30	81-07-20	2700	2300	--	150	130	200	--
14E 29	81-07-20	930	840	--	40	30	260	--
14E 31	81-07-21	310	170	--	20	10	310	--
14ES 6*	81-02-18	80	10	<1	10	<1	7	4
14E 34	81-07-20	140	90	--	10	10	230	--
13E 6	81-07-20	1100	110	--	40	50	140	--
14ES 8*	81-02-20	220	20	<1	10	3	10	10
14ES 9*	81-02-20	130	30	<1	20	10	20	420
13E 7	81-07-20	3200	3000	--	140	140	350	--
13E 8	81-07-20	3200	650	--	110	110	200	--
14E 28	81-07-20	9400	5200	--	600	590	390	--
14E 27	81-07-20	12000	10000	--	290	290	310	--
14E 23	81-06-11	80	<10	<1	10	<1	750	600
14ES12*	81-06-11	2400	100	<1	90	70	7	20
14ES13*	81-07-21	270	20	--	10	<1	120	--
14E 33	81-07-21	1100	810	--	180	140	310	--
14E 35	81-07-21	250	70	--	10	10	80	--
14E 20	81-02-18	1400	320	<1	170	190	200	250
14F 88	81-07-21	230	70	--	<10	<1	20	--
14F 89	81-07-21	5900	170	--	1500	1500	60	--
15F 23	81-07-22	8800	6600	--	250	230	160	--
14FS 7*	81-07-21	160	40	--	10	<1	40	--

* Spring
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WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

LOCAL IDENTI- FIER	STATION NUMBER	GEO- LOGIC UNIT	DATE OF SAMPLE	DEPTH OF WELL, TOTAL (FEET)	DEPTH TO BOT- TOM OF WATER- BEARING ZONE (FT)	DEPTH TO TOP OF WATER- BEARING ZONE (FT)	SPE- CIFIC CON- DUCT- ANCE (UMHOS)	PH (UNITS)	TEMPER- ATURE (DEG C)
				BUCHANAN					
14F 85	370828082063301	110QRNR	81-07-20	20	--	--	58	5.8	20.5
14F 86	370830082062601	324NRTN	81-07-20	38	--	--	230	6.7	21.5
15F 21	370843081582301	324NRTN	81-07-22	56	--	--	260	6.0	15.5
15F 22	370844081582701	324NRTN	81-07-22	65	--	--	280	6.7	16.5
15F 20	370903081583601	110QRNR	81-07-22	30	--	--	274	6.5	18.0
14FS 5*	370906082053201	324NRTN	81-07-20	--	--	--	108	7.1	20.0
14FS 6*	370918082055901	324NRTN	81-07-20	--	--	--	328	7.1	23.0
14FS 8*	371013082052201	324NRTN	81-07-23	--	--	--	120	5.8	22.5
15F 19	371031081593601	324NRTN	81-07-22	150	--	--	400	7.1	23.0
15F 18	371032081594501	110QRNR	81-07-22	25	--	--	105	6.5	25.0
14F 91	371042082045601	324NRTN	81-07-23	105	--	--	195	6.8	18.5
14F 83	371115082001601	324NRTN	81-07-22	60	--	--	536	7.2	15.5
14F 84	371118082000501	324NRTN	81-07-22	98	--	--	402	7.3	16.0
14F 53	371410082031801	324NRTN	81-02-24	140	140	120	270	6.8	11.5
14F 52	371426082020001	324NRTN	81-02-24	182	182	76	1400	7.1	10.0
13G 8	372109082110101	324NRTN	81-02-24	324	324	50	580	7.2	15.0
13G 10	372109082111401	324NRTN	81-02-25	300	300	50	1080	6.1	16.0
13G 9	372113082111101	324NRTN	81-02-25	350	350	48	740	7.0	15.0
				LOUDOUN					
50W 97G	390223077351301	231BLRN	80-12-02	--	--	--	165	7.0	12.0
50W 96G	390227077352701	231BLRN	80-12-02	500	--	--	168	6.0	11.0
50W 93D	390230077351601	231BLRN	80-12-02	97	--	--	41	6.5	--
50W 95E	390233077345001	231BLRN	80-12-02	--	--	--	18	6.9	10.0
50W 92D	390234077351001	231BLRN	80-12-02	97	--	--	147	3.9	--
50W 91D	390236077354201	231BLRN	80-12-02	--	--	--	273	6.9	11.0
50W 90D	390253077353801	231BLRN	80-12-02	--	--	--	241	6.9	11.0

* Spring

Geologic Unit (aquifer):

110QRNR - Alluvium, Quaternary age.
231BLRN - Bull Run Formation, Upper Triassic age.
324NRTN - Norton Formation, Middle Pennsylvanian age.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

LOCAL IDENTI- FIER	DATE OF SAMPLE	HARD- NESS (MG/L AS CACO3)	CALCIUM DIS- SOLVED (MG/L AS CA)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG)	SODIUM, DIS- SOLVED (MG/L AS NA)	POTAS- SIUM, DIS- SOLVED (MG/L AS K)	ALKA- LINITY LAB (MG/L AS CACO3)	SULFATE DIS- SOLVED (MG/L AS SO4)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL)	FLUO- RIDE, DIS- SOLVED (MG/L AS F)
BUCHANAN										
14F 85	81-07-20	25	5.9	2.4	4.0	1.3	15	11	1.2	--
14F 86	81-07-20	42	11	3.6	19	1.6	87	1.6	1.6	--
15F 21	81-07-22	76	21	5.6	21	1.4	110	1.3	7.1	--
15F 22	81-07-22	72	21	4.7	25	1.2	120	--	7.8	--
15F 20	81-07-22	97	23	9.5	15	3.2	76	32	14	--
14FS 5*	81-07-20	55	13	5.5	4.2	1.3	36	13	.6	--
14FS 6*	81-07-20	140	30	15	5.0	2.2	22	110	1.4	--
14FS 8*	81-07-23	36	9.6	2.9	6.0	3.2	20	18	4.9	--
15F 19	81-07-22	100	29	6.5	49	2.2	95	60	32	--
15F 18	81-07-22	37	8.7	3.6	7.7	4.2	10	28	1.8	--
14F 91	81-07-23	65	19	4.2	16	1.3	78	10	5.1	--
14F 83	81-07-22	150	40	12	49	2.1	170	27	55	--
14F 84	81-07-22	110	29	9.2	41	2.0	160	35	8.8	--
14F 53	81-02-24	100	25	10	4.0	1.9	13	79	16	.1
14F 52	81-02-24	260	75	17	180	2.8	147	11	370	.1
13G 8	81-02-24	140	38	11	54	1.7	146	67	52	.2
13G 10	81-02-25	320	61	41	56	3.8	32	350	74	.1
13G 9	81-02-25	190	50	15	59	2.0	150	120	69	.2
LOUDOUN										
50W 97G	80-12-02	83	23	6.1	1.8	1.0	85	1.4	1.4	.1
50W 96G	80-12-02	76	24	3.9	1.7	1.2	80	.9	1.6	<.1
50W 93D	80-12-02	8	2.6	.4	1.3	2.0	6.0	9.8	2.0	<.1
50W 95E	80-12-02	3	.5	.4	1.0	1.1	6.0	1.2	1.6	<.1
50W 92D	80-12-02	4	1.2	.3	.7	3.4	--	25	1.3	<.1
50W 91D	80-12-02	110	31	7.8	5.7	1.4	100	.0	8.1	<.1
50W 90D	80-12-02	110	21	14	3.6	.7	120	.4	.8	<.1

* Spring
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WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

LOCAL IDENTI-FIER	DATE OF SAMPLE	SILICA, DIS-SOLVED (MG/L AS SIO2)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N)	PHOS-PHORUS, TOTAL (MG/L AS P)	ALUM-INUM, DIS-SOLVED (UG/L AS AL)	BARIUM, DIS-SOLVED (UG/L AS BA)	CADMIUM DIS-SOLVED (UG/L AS CD)	COPPER, DIS-SOLVED (UG/L AS CU)
					BUCHANAN					
14F 85	81-07-20	--	43	--	--	--	--	80	--	--
14F 86	81-07-20	--	92	--	--	--	--	100	--	--
15F 21	81-07-22	--	143	--	--	--	--	200	--	--
15F 22	81-07-22	--	149	--	--	--	--	300	--	--
15F 20	81-07-22	--	185	--	--	--	--	90	--	--
14FS 5*	81-07-20	--	62	--	--	--	--	40	--	--
14FS 6*	81-07-20	--	218	--	--	--	--	50	--	--
14FS 8*	81-07-23	--	74	--	--	--	--	80	--	--
15F 19	81-07-22	--	254	--	--	--	--	700	--	--
15F 18	81-07-22	--	83	--	--	--	--	100	--	--
14F 91	81-07-23	--	117	--	--	--	--	300	--	--
14F 83	81-07-22	--	308	--	--	--	--	500	--	--
14F 84	81-07-22	--	256	--	--	--	--	300	--	--
14F 53	81-02-24	9.6	163	155	.01	<.010	20	50	<1	1
14F 52	81-02-24	14	835	770	.91	.020	<10	2400	2	<1
13G 8	81-02-24	13	347	330	.06	.010	20	300	<1	<1
13G 10	81-02-25	20	720	659	.05	.140	<10	60	3	<1
13G 9	81-02-25	13	438	426	.02	.030	<10	400	2	<1
					LOUDOUN					
50W 97G	80-12-02	15	101	101	--	--	--	--	--	--
50W 96G	80-12-02	14	95	95	--	--	--	--	--	--
50W 93D	80-12-02	9.0	30	30	--	--	--	--	--	--
50W 95E	80-12-02	8.4	16	18	--	--	--	--	--	--
50W 92D	80-12-02	11	51	44	--	--	--	--	--	--
50W 91D	80-12-02	12	147	126	--	--	--	--	--	--
50W 90D	80-12-02	14	128	127	--	--	--	--	--	--

* Spring

< Actual value is known to be less than the value shown.

WATER QUALITY DATA, WATER YEAR OCTOBER 1980 TO SEPTEMBER 1981

LOCAL IDENTI-FIER	DATE OF SAMPLE	IRON, TOTAL RECOV-ERABLE (UG/L AS FE)	IRON, DIS-SOLVED (UG/L AS FE)	LEAD, DIS-SOLVED (UG/L AS PB)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN)	MANGA-NESE, DIS-SOLVED (UG/L AS MN)	STRON-TIUM, DIS-SOLVED (UG/L AS SR)	ZINC, DIS-SOLVED (UG/L AS ZN)
				BUCHANAN				
14F 85	81-07-20	510	60	--	30	30	50	--
14F 86	81-07-20	--	--	--	--	--	90	--
15F 21	81-07-22	6000	5300	--	400	390	190	--
15F 22	81-07-22	7100	6300	--	310	290	240	--
15F 20	81-07-22	1600	690	--	700	660	160	--
14FS 5*	81-07-20	150	<10	--	<10	<1	60	--
14FS 6*	81-07-20	230	<10	--	20	4	220	--
14FS 8*	81-07-23	330	70	--	30	40	60	--
15F 19	81-07-22	3500	2400	--	140	160	630	--
15F 18	81-07-22	340	70	--	10	10	100	--
14F 91	81-07-23	4400	620	--	280	260	290	--
14F 83	81-07-22	930	620	--	760	670	580	--
14F 84	81-07-22	1500	250	--	300	290	420	--
14F 53	81-02-24	300	<10	<1	70	60	180	850
14F 52	81-02-24	5300	5400	<1	1300	1300	1700	20
13G 8	81-02-24	2700	3000	<1	370	380	1600	<4
13G 10	81-02-25	38000	14000	1	110000	13000	450	3700
13G 9	81-02-25	4000	4000	<1	870	870	1800	<4
				LOUDOUN				
50W 97G	80-12-02	--	<10	--	--	--	--	--
50W 96G	80-12-02	--	10	--	--	--	--	--
50W 93D	80-12-02	--	10	--	--	--	--	--
50W 95E	80-12-02	--	30	--	--	--	--	--
50W 92D	80-12-02	--	30	--	--	--	--	--
50W 91D	80-12-02	--	<10	--	--	--	--	--
50W 90D	80-12-02	--	<10	--	--	--	--	--

* Spring

< Actual value is known to be less than the value shown.

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